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EDITORIAL

With the New Year the College Magazine has commenced a new era in its history. This issue contains the labours of almost an entirely new board, from the men's stand point. Our readers are doubtless aware that changes on the editorial staff occur twice in the college

year. The men are appointed at the beginning of each calendar year and the women at the beginning of the session. This, as has been pointed out in a previous issue, releases the Senior year from any work on the magazine during their graduating term. With regard to the

girls, it might be said that the majority of them only remain at college for one year, and so it is necessary to make their appointments at the beginning of the Fall term.

Elsewhere in this issue will be found an honour to the retiring Editor and Advertising Manager. Both these men have spent a considerable portion of their time in furthering the usefulness of this magazine and in strengthening it both financially and otherwise.

The new board have made many resolutions in regard to future work; chief among which is that they shall endeavour to the best of their ability, to at least maintain the standard set by previous boards. To do this we have a great task before us; but we have set our shoulders to the wheel and undoubtedly we can accomplish it with the united forces of the other students. We make an earnest appeal to you for support. Do something! Do not be satisfied with all the board can do. Let us remember that this is the only official organ of the student body; it is assuredly no side show in which only the members of the editorial staff take part. It is for the benefit and uplift of the whole student body. The board forms only a small fraction of this whole, and therefore, without your co-operation, failure must be a sure result.

Here are a few suggestions we should like to make:—Get interested; talk the magazine up amongst yourselves as you would a football game; if you have any pointers let us have them, as these are very acceptable; assist the Editor and sub-editors in every possible way; if asked for help, give it cheerfully and without a murmur, remembering that if everyone said 'no' there would be no magazine; suggest the names of persons who would be likely to contribute

articles; send in illustrations; patronize the advertisers; get your friends to subscribe; last, but not least—do not be over anxious to criticise.

We have been exceedingly fortunate to get contributions in this number from men who have never contributed before. We refer particularly to those from Mr. L. H. Newman, on the "Principals of Breeding Cereal Plants as Recognized at Svalöf, Sweden," Mr. J. C. Sutherland, on "Popularizing Knowledge," and Mr. R. W. Edmison, on "Carlyle's Heroes and Hero Worship." The last mentioned is a new feature in that it is an article on literary work, which has never received any attention before in our pages. The remaining columns are well filled with articles and notes from men with whom we are all well acquainted; especially would we draw the attention of readers to those bearing on school problems in general.

* * *

Chief among other items of interest are the Winter Short Courses which have just ended. Under the agricultural column we publish an article on the one given by the Cereal Husbandry Department. The writer has touched briefly on the advantages of such a course, so there is no necessity for us to say much here. The point to be emphasized, however, is that in no other way can the busy man get this kind of information, which has been boiled down to suit his needs. The farmer wants the facts pertaining to practical work, and when he gets in two weeks material which is given to the ordinary students in four years, he is certainly getting, we might say, the very quintessence. Year after year our agricultural colleges are realizing the importance of having such courses, and the fruit of their labour is well seen in the increased

attendance. Right here, however, it would be well to note that the Province of Quebec has not yet wakened up to what Macdonald College offers in this regard. Attendance has increased, it is true, but in a very small proportion. Let us refer to Truro Agricultural College. This year no less than 350 students attended their Short Course. This shows that the people of the Maritime Provinces are not only alive to their needs, but see to it that these are supplied. Here in Quebec there are better facilities for meeting the farmers' requirements than there are in the Maritime Provinces, yet many are merely content to sit still and for ever remain in the dark with regard to some of the great problems which confront the successful farmer of to-day.

Notes on the Horticultural and Poultry Courses will be published in our next, also a list of the Students registered for them. A list of those who registered for the courses in Animal and Cereal Husbandry is published in another column.

In the Household Science column we would draw the attention of readers to the announcement regarding the Spring Short Course. This begins on March 25 and continues to June 13.

* * *

A live question to-day in the minds of eminent agriculturists and men who have the welfare of our nation and country at heart is that of maintaining soil fertility. In almost every journal, magazine or agricultural paper we find negligence in this on the part of our soil cultivators lamented. This seemingly old, but yet new problem (new in so long as we continue to drag from the land without enriching it), is discussed to-day with feelings of awe and dismay.

The significance of this problem bears no comparison with others when we think that the nation must be fed. Let us also remember future generations. Let us be alive to the fact that our population is increasing by leaps and bounds, but not so the yields obtained from our crops. What is the cause of this decrease in yields? We feel somewhat diffident to say.

One great reason is that among a certain class of so-called farmers there is developed a spirit of commercialism, which simply means that as long as they can show profits they take no step towards restoring or increasing or permanently maintaining the fertility and productive power of our farm lands. As soon as profits are not forthcoming they, like some of the nomadic settlers of old, immediately sell out, take up their abode in other regions, and start up their work of devastation afresh. The poor farmers, to whom they sell the original land at a low figure, have no means with which to buy the necessary soil ingredients, and so the same thing goes on as before, the occupiers being content, so long as they can barely live. This is true in a great measure where there is much land available, but sooner or later with the rapid increase of population and the taking up of all our virgin lands, such wanderings will come to an end. In the meantime, however, what is to be done with the vast areas already depleted, and those that are being depleted daily?

This brings us to the second point, and that is, the ignorance of those at present on the land, of the necessity of restoring to it the elements of plant food taken out by the crops grown. We quote the following lines from an address given by Dr. G. C. Hopkins, of Illinois, at the

meeting of the Third National Conservation Congress:—

“ Why should not every influential man and woman in America have a definite and quantitative knowledge of the basic principles that to increase and permanently maintain the productive power of our normal soils, in practical systems of farming, requires the addition to the soil and permanent maintenance of adequate supplies of only three important constituents, limestone, phosphorus and nitrogenous organic matter?” Surely this question can be asked with equal fervour of Canadians. He further goes on to say that having abundant supplies of phosphorus and lime, the nitrogenous organic matter can be produced by the growing of clover and other leguminous crops, which have the power to fix nitrogen from the inexhaustible supply in the air; also that by ploughing under this organic matter, either directly or in animal

manures, the remaining essential mineral plant food, such as potassium, can be liberated and made available from the practically inexhaustible supply in the soil.

As mentioned before, this problem of maintaining soil fertility is not necessarily a new one; it was prevalent in the minds of men like Xenophon, Cato, Columella, Virgil and later of Tull. These all thought of methods of enriching the soil. Departments of Agriculture, Agricultural Colleges and Agricultural Societies were all unknown in those days, therefore how much more should this problem demand our attention to-day? We say without reserve that it is high time for us in Canada to awaken to a sense of this great question, and not only launch out into the deeper problems of dry-farming and irrigation on virgin soils, but reclaim the vast areas which are being depleted day by day.

A Magazine Honour.



WHEN we consider the necessarily frequent changes on the staff of this magazine we are reminded of the lines,

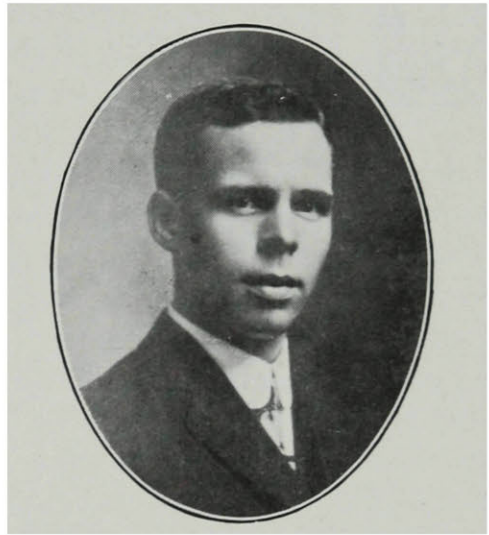
“Men may come and men may go,
But I go on forever.”

Since the publication of the first number many good men, and women too, on the staff have come and gone; but there is no reason to believe that this magazine which is published by the foremost Agricultural College of the greatest agricultural country should not “go on forever.”

The Editorial Board wishes to express to all the members of last year's Board its appreciation of the very valuable services they have rendered.

Last Fall found the Magazine in a critical position owing to the sudden

would be necessary in order to get the issue out in time. Not only, however, did he succeed in doing this, but he gave us a number which both in quantity of reading matter and in quality of work was equal to the best of the preceding issues. We wish him well, and feel assured that soon Yarmouth, N. S., will



MR. R. NEWTON.



MR. M. B. DAVIS.

resignation of Mr. Kennedy. The time for the publication of the next number was near, and the student body, recognizing the need of a man of ability, unanimously elected Mr. M. B. Davis to the editorship. He accepted this position, knowing that very hard work

be famous not for its fish, but as the birth place of Mr. Davis.

Earnest and sincere in all things, Mr. Robert Newton has won the respect and esteem of all the students on both sides of the campus. Mr. Newton has been connected with the magazine since its inception, first as Agricultural Editor and afterwards as Advertising Manager. His work on the magazine has been characterized by his usual earnestness, and very often he has denied himself or has been put to great inconvenience in order that he might do well the work he had undertaken. Would that all the students possessed as much College Spirit. The Editorial Board wishes Mr. Newton every success, and we are sure that the time is not far off when he will be a leader in his country as he has been in his college.

Bees as Friends of the Agriculturist.

(Synopsis of an address given before the Macdonald Apiary Club.)

By W. LOCHHEAD, B.A., M.Sc., Professor of Biology.

I. THE STATEMENT—BEES AS FRIENDS OF THE AGRICULTURIST.



HIS statement must appear to all of us here a self-evident truth. Evidences lie everywhere about us—in the garden, the orchard, and the fields. Occasionally, however, we are asked to provide definite proof of the value of bees in the setting of fruit or in the production of clover seed. We are told that it is very well to tell people that bees are necessary in the orchard, but more is required than a mere statement. Definite proof ought to be forthcoming if the public is to be convinced. My purpose, then, is to produce the proofs or evidences that bees are necessary to the farmer and the fruit-grower.

2. KINDS OF EVIDENCE.

In this matter, as in others, there are two kinds of evidence, *circumstantial* or *indirect* evidence, and *direct* evidence. Circumstantial evidence may be strong or weak according to the intensity of the light it throws on the mystery. If it offers the only satisfactory explanation of the facts of the case it is frequently as valuable as direct observational evidence. If it can be shown that the blossoms of apples and clovers, for example, are so constructed that they require insects to pollinate them; and if their colours and sweets attract bees and wasps, we may feel certain that such indirect evidences are of much weight. On the other hand, if it can be shown that the blossoms of the plants protected

from insect visits set no fruit or seed; or if orchards and fields, when unvisited by bees and wasps, or when visited by few, produce but little fruit or seed, these would be direct evidences of the value of such insects.

3. INDIRECT EVIDENCES.

That bees visit flowers for the sake of the nectar and pollen has been known for thousands of years, but the part played by bees in connection with the fertilization of flowers, and the adaptation of flowers to insects are of recent discovery. To Kölreuter, Gartner, Sprengel and Darwin we owe much for their investigations on the inter-relations between insects and flowers. To Darwin especially we are indebted for the discovery that as a rule continued self-fertilization is disadvantageous to plants. The results of his experiments led him to make his famous remark, "Nature abhors perpetual self-fertilization." The advantages of cross-fertilization over self-fertilization were shown by the difference in height, weight, constitutional vigor and fertility of the offspring, and in the number of seeds produced.

Moreover, Darwin showed that certain flowers are dependent for fertilization on the transference of pollen from other plants of the same kind.

Observations reveal the fact that cross-pollination is accomplished mainly by two agencies, the wind and insects. Wind-pollinated flowers have dry, powdery pollen, feathery stigmas (as a rule), inconspicuous, regular corollas, and no

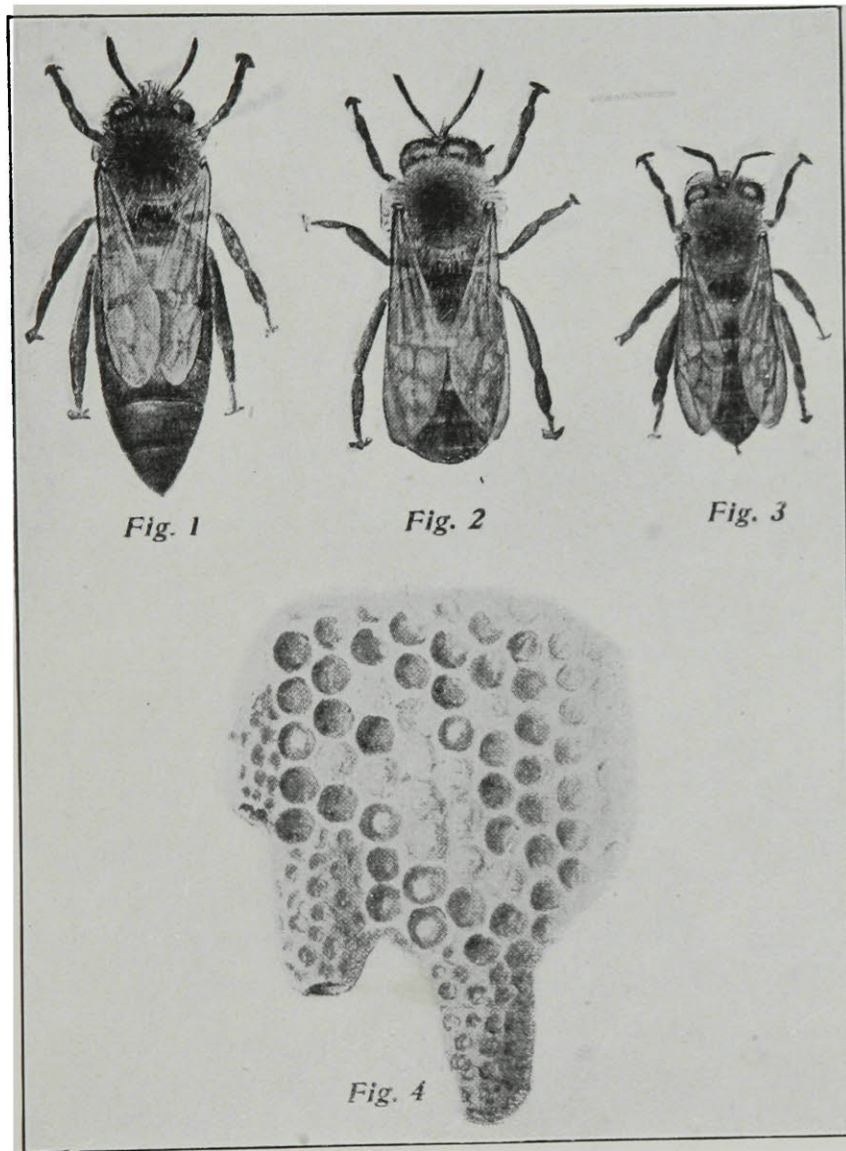
odor or nectar. Insect pollinated flowers, on the other hand, have sticky pollen, showy, often bright colored and irregular corollas, nectar, and attractive odors.

A close study of plants reveals the fact that a very large number are modi-

(3) *Special contrivances* in the flower whereby cross-pollination is favored; and

(4) *Self-sterility*, or the inability of a flower to set fruit with its own pollen.

In the apple and pear there is a slight difference in date of maturity of stamens



THE HONEY BEE.

Fig. 1, Queen Bee, enlarged ; Fig. 2, Drone ; Fig. 3, Worker ; Fig. 4, Queen Cells.

(Cut taken from Cornell Reading and Nature Study Courses.)

fied in some form to secure cross-pollination. The principal devices adopted are:

(1) *Diclinism*, or the separation of the stamens and pistils on different flowers, on the same plant or on different plants;

(2) *Dichogamy*, the difference in time of maturity of stamens and pistil on the same flower;

and pistil, the pistil maturing first. In the clovers, as we shall see, there is a special structural contrivance which enables foreign pollen to reach the stigma first. Besides, these blossoms contain abundant nectar. Self-sterility is common in orchard varieties, particularly of pears, plums, and grapes; and the list is

fairly large. This fact alone shows the important part played by cross-pollination.

When, therefore, the flora of a country is closely studied it is found that insect cross-pollinated flowers can be told, even at a glance, in many instances. They always show the associated characters which I have already indicated, viz.: colored corolla, sticky pollen not capable of being wind-blown, and the presence of nectar and often of odors. Frequently, besides, they have some special device which favors cross-pollination.

Now, orchard blossoms and clover blossoms possess all the characteristics of insect cross-pollinated flowers, and if it is found that bees are the main insect visitors, the evidence is convincing that bees are the main agents in the production of fruit and the setting of seed.

The Apple Blossom—The flower of the apple is perfect, *i.e.*, has both stamens and pistil. The calyx is urn-shaped, upon which rests the corolla with five rose-colored petals. There are numerous erect stamens. At first they are crowded together in the middle of the flower, and the unripe pollen sacs (anthers) are on the same level as, or a little below, the five stigmas which mature earlier. Anthesis (opening of the sacs) begins about two days after the opening of the buds, and lasts from five to six days. The outer anthers open before the inner. Self-pollination may occur in those varieties where the stamens keep opening for some time and at the fading of the flower when the styles bend outward among the stamens.

Pear Blossoms—The petals are white and attractive as in the apple. Anthesis lasts from seven to eight days. On the opening of the flowers the central stigmas are already mature, and the styles stand

erect and above the unripe stamens which bend inward and guard the passage to the nectar. As a result, the insect alights on the stigma and effects cross-pollination. This protogynous stage lasts two to four days.

It will be seen, therefore, that cross-pollination is absolutely essential. Although some varieties are fertile with their own pollen, yet many require to be pollinated by another variety. Nectar is secreted copiously in the cup-shaped disk, which attracts bees and other insects. Pollen is transported from tree to tree by bees and other insects, and not by the wind.

Red Clover Blossom—The blossoms of Red Clover are irregular and aggregated into spherical heads. The corolla is composed of five petals united at the base, an upper large petal (the standard), two side petals (the wings), and two lower petals united in a keel-shaped structure (the keel). The "keel" contains the ten stamens with nine filaments united to form a tube, and the pistil with a long style. The stigma projects above the anthers to some extent. The nectar is found at the base of the stamen tube at their junction with the claws of the petals.

When a bumble bee lights on a blossom its weight depresses the interlocked wings and keel, and causes the stigmas and anthers to protrude beyond the apex of the keel and strike the under surface of its body which is covered with pollen brought from another flower. On account of the greater length of the style, the stigma strikes the body of the bee before the anthers do, thus effecting cross-pollination. Self-pollination, it is true, must often occur, but it is ineffective, as shown by Darwin and others.

To reach the nectar, insect visitors must have a beak 9-10 mm. long, but "any insect sufficiently heavy to press down the keel can pollinate the flower." The bumble bees have long beaks and are able to get the nectar and at the same time pollinate the stigmas.

White Clover—The flowers are white or reddish, and have a sweet smell. The stigma projects beyond the anthers and bees alone are able to work the mechan-

Domestica flowers are more protogynous than the *Americana* flowers, so that they are more likely to be cross-pollinated. Infertility of pollen prevents fertilization even when self-pollination occurs.

Raspberry and Blackberry Blossoms—These blossoms have white petals and abundance of nectar, but those of the blackberry are more attractive. The stigma is receptive before the stamens



AN APPLE TREE IN BLOSSOM.

(Cut taken from Cornell Reading and Nature Study Courses.)

ism properly so as regularly to effect cross-pollination. The wings and keel move together. Short-tongued bees are unable to reach the nectar, but honey bees are responsible for most of the pollination.

The Plum Blossom—The white flowers and nectar are attractive to insects. The *Americana* flowers are slightly protogynous, so that when they open they are ready to receive pollen. The

mature, so that cross-pollination is facilitated. In both species, honey bees are the main pollinators.

Gooseberry and Currant Blossoms—These secrete nectar and are visited by honey and bumble bees. In one of these species the flowers are dioecious, that is, the staminate and pistillate flowers are on different plants. In the rest the relative positions of stamens and stigmas secure cross pollination.

The Strawberry Blossoms—Inasmuch as many of the cultivated varieties of the cultivated strawberry are staminate and pistillate, cross-pollination is absolutely essential to fertilization. "Nectar is secreted by the receptacle at the base of the filaments next to the outer row of pistils." Honey bees and short-tongued bees are the main pollinators.

4. DIRECT EVIDENCES.

The direct evidences obtained by means of experiments and observations show clearly that bees are very important factors in the pollination of orchard fruits and the various species of clovers.

The Apple—Waite, of Washington, covered many blossoms with gauze netting, and out of 2586 only three apples set fruit. "Of these the Baldwin, Spitzenburg, and Fameuse set some fruit." Further experiments showed that even the Baldwin, which is often self-fertile, gave much better results (4 times) when cross-pollinated. The Greening, Talman Sweet, Spitzenburg, and Twenty Ounce gave very poor results from self-pollination. Waite concluded from his experiments that cross-pollinated apples were "larger, more highly colored, and better supplied with seed".—(*Year Book*, U. S. Dep. Ag. 1898, p. 177).

The Pear—Waite's experiments on pollination of the pear show convincingly that pears require cross-pollination. He found the Anjou, Bartlett, Clapp's Favorite, Clairegeau, and others completely self-sterile, while the Flemish Beauty, Seckel, and Angouleme to be more or less self-fertile. The Kieffer and LeConte are self-sterile in the north.

Self-fertilized pears are deficient in seeds, while crosses are well supplied with sound seeds. Even with those varieties that are self-fertile the pollen

of another variety is prepotent; the normal typical fruits are crosses.

The Plum—Experiments showed that "out of 153 blossoms covered of the Arkansas Lombard no fruit set; that out of 457 blossoms covered of the Wild Goose (*Prunus Americana*) no fruit set; and that out of 90 blossoms covered of the Japanese plum (Maru) no fruit set."

Prof. Waugh (Rep. Vt. Ag. Exp. St. 1897-8, p. 237) found the following insects pollinating the plum: honey bee, bumble bee, wasp, and some short tongued bees.

In experiments carried out in 1907 at Denton, Md., Prof. Waugh secured the following results:

Of 490 Blossoms that were covered belonging to Japanese varieties of plums none set fruit; of several covered blossoms of the Wild Goose varieties none set fruit; and of 449 covered blossoms of the Chicasaw group none set fruit. On the other hand, unprotected blossoms of the same varieties had a moderate crop of fruit, due to the very unfavorable weather conditions during the blooming time.

With regard to the question, "Are the visits of insects really necessary to pollination," Prof. Waugh continued his experiments at Denton, Md., in 1908, with the following results:

On 457 covered blossoms of chicas and varieties no fruit set; on 216 covered blossoms of Japanese varieties no fruit set; on 457 covered Wild Goose plums no fruit set. On the other hand, the unprotected blossoms set a fair crop of fruit in spite of unfavorable weather.

Professor Waugh says, "These results indicate that insect visits are of prime importance in the pollination of plums. Observation in the field shows that the common honey bees are nearly always the most active workers, and the ones

which, by the character of their operations in the flower, may be held chiefly responsible for the proper distribution of pollen."—(Rep. Vt. Ag. Exp. St. 1897-8, pp. 246-247).

Red Clover—Darwin carried out some interesting experiments regarding the fertilization of red clover. He says, "one hundred flower heads on plants protected by a net did not produce a single seed, while a hundred heads on plants growing outside, which were visited by bees, yielded sixty-eight grains of seeds".

Hermann Muller says the honey bee "usually visits the red clover only for its honey, which its proboscis is not able to reach in a legitimate manner, yet now and then I have seen hundreds of honey bees in a patch of red clover, all busy collecting pollen." He records thirty-nine kinds of insect visitors to red clover.

White Clover—Darwin experimented with white clover and showed conclusively that cross-pollination is necessary. Twenty protected heads were compared with ten unprotected, the result being that the former yielded a single aborted seed, while the latter, which was visited by bees yielded 2290 seeds.

Alfalfa or Lucerne—Several investigators have shown conclusively by experimentation that insects are necessary to fertilize the blossoms of Alfalfa. Burkill and Urban, Kirchner and Fruwirth, and Roberts and Freeman have proved that seed production is prevented almost entirely when insects are excluded from the blossoms. —(Bul. 151 Kansas Agric. Exp. St., 1907.)

Dr. H. J. Webber of Cornell University, in a recent letter dated Dec. 7th on the effect of bumble bees in the production of clover, says, "I know of no

recent experiments on this subject which have been published, but I do know of several experiments which have been carried out in different parts of the country which uphold Darwin's view point of the action of bumble bees. I can hardly understand how Garton Brothers could have been mistaken in their conclusions, but the fact is that of experiments carried on by scientific men. I know of none which uphold the Garton's view point. Mr. A. D. Shamel, who was one of my assistants while I was in Washington, D. C., made a number of experiments with red and white clover, by enclosing the flowers in bags, thus preventing the access of bees, and in all cases where the flowers were bagged scarcely ever was a seed set, due without question to the lack of pollination. Several of my assistants here at Cornell have also carried out limited experiments of this sort with the same results. We had expected to carry on rather extensive clover experiments and had a lot of material brought together, but gave up the idea of hybridization owing to the difficulty of getting self-fertilized seed; clover being in general almost self-sterile under ordinary conditions."

We may therefore summarize the foregoing remarks in the words of A. A. Phillips, Bee Expert in the Bureau of Entomology, Washington, who says: "The production of the millions of dollars worth of fruit in the United States depends largely on insect pollination, and no insect is so important in this work as the honey bee. It is a most conservative estimate to claim that the honey bee does more good to American Agriculture in its office as a cross-pollinator than it does as a honey gatherer."

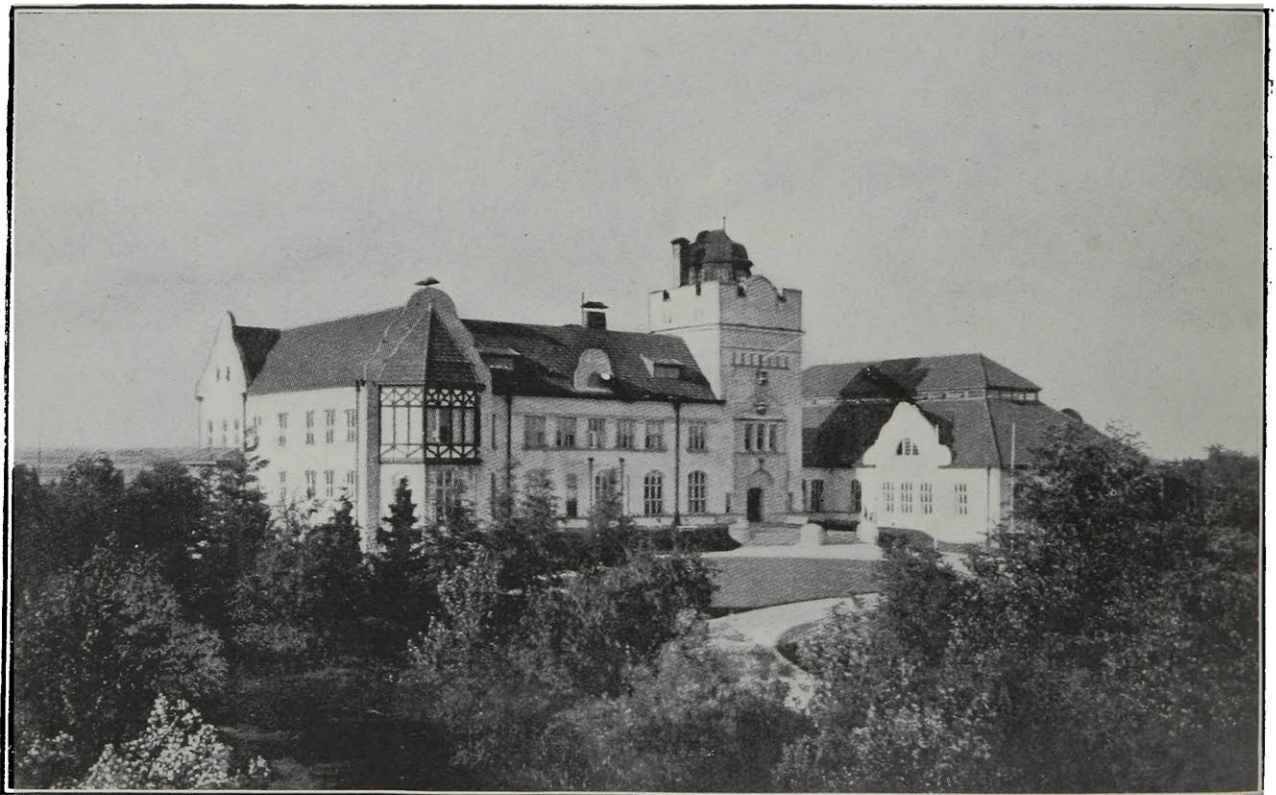
Principles Recognized in the Breeding of Cereal Plants at Svalöf, Sweden.

By L. H. NEWMAN, B.S.A., Ottawa.



It is not my intention in this paper to give an exhaustive account of the work which is being done at the famous Plant Breeding Institution at Svalöf, but rather to present as briefly as possible a description of those principles which are at present recognized in the production of more useful forms of cereal plants at that Institution. It should perhaps be stated at the outset

applied by the Swedish experts are not the principles which were recognized at the beginning. In all progressive work, especially such work as has to do with life, new experiences and the accumulation of new data are likely to bring new conclusions and give birth to new principles. Such is the history of the work at Svalöf. When this work first began, the development of better strains was sought to be fulfilled by the application



MAIN BUILDING, SVALÖF.

that the exposition of these principles as here given represents the results of a special enquiry by the writer who spent several months at Svalöf with a view to obtaining first hand information as to the nature of the work which is being prosecuted at that place.

It need scarcely be stated that the principles which are now recognized and

of a system of continuous selection according to which one sought to change the strain in its entirety in a certain desired direction. This principle assumed the omnipresence of hereditary variations even in such self-fertilizing plants as wheat, oats and barley, and in accordance with the Darwin idea, it was believed that definite and substan-

tial improvement could be effected by selecting plants which seemed to vary in certain desired directions. The unit of improvement was therefore the "group" of plants which was selected *en masse* according to a presumably superior type. This system of selection was commonly called the system of *mass-selection*.

While the old idea that all plant life is constantly in a state of unrest—varying this way or that—and that such variation is hereditary in character has had to be modified, yet the original system of mass-selection was by no means without results. Greater uniformity, higher yielding capacity and, in autumn wheats, greater hardiness were the ultimate rewards of these early endeavours, although it required several years before the extent of this improvement became fully demonstrated. So long as the operator confines his selection to mixed or composite varieties, that is varieties which consist of two or more strains of varying practical values, it is regarded possible, in most cases, to effect an improvement by means of this system. This improvement is due to the exclusion of inferior strains and to the inclusion of only those which conform to the desired type. In this way there is also gradually obtained a relatively pure group although this may still remain more or less composite in character.

While the efforts to effect improvements upon certain old varieties of cereals by the system of mass-selection were therefore by no means futile, yet at the end of the first five years' work the various cultures did not measure up to the standards of constancy and uniformity which had been set at the beginning, but each generation continued more or less heterogeneous. This served to introduce more exact methods and a more careful examination of all types

dealt with. Hundreds of apparently distinct types were selected from the common varieties and the seed from each group sown in separate plots. In four or five cases single plants or heads seemed to have no duplicate. When the seed from these was sown and the resulting plants approached maturity, it was seen that these, and these alone of all the hundreds of cultures under consideration were uniform in character. This discovery served to introduce the so-called system of separate or pedigree culture by which the *single individual* constitutes the starting point for new sorts instead of the "group" as in the older system.

In the isolation of individual plants only those individuals which were *morphologically* or "*botanically*" different were at first taken, as it was supposed that certain botanical or morphological characters were definitely correlated with certain practical qualities. Thus great weight was attached to such points as the position of the branches of the panicle in oats, the number of kernels in the spikelets and the density or closeness of the head in wheat and barley. In the latter case compactness of head was supposed to be correlated with stiffness of straw. In selecting for stiff strawed sorts, the character of the head was therefore accepted as an indication of the degree of stiffness by which it was characterized. This idea, however, came to be modified later. Many interesting illustrations might be cited of the manner in which the choice of mother plants came to be influenced by certain peculiar characters or marks which they happened to possess. This idea of form separation (*Formentrennung**) had been applied by Le Couteur and Patrick Shirrif, of England, many years before, but at Svalöf it was intro-

*Fruwirth.

duced on a much greater scale. At first it seemed that this system was capable of being developed to a high degree of perfection. If practical qualities were indicated by or correlated with morphological characters, the problem of the breeder must obviously be to ascertain first of all just what character is correlated with a given quality. This accomplished, the isolation of superior mother plants as starting points for new and improved races would be a comparatively simple matter. Unfortunately experience came to show that the practical value of a sort cannot be judged on the above basis with any degree of certainty, neither can the most desirable mother plants be always isolated in a mixed population on this basis alone. Two main reasons are submitted in explanation of this fact. In the first place a plant may be temporarily modified by external factors to such an extent as to cause it to assume quite an altered appearance. While the character thus temporarily acquired may be a promising and attractive one, yet the fact of its instability renders the selection of such plants uncertain. In the second place, physiological qualities may be concealed in individuals which do not possess striking morphological characters and which gave little suggestion as to their real practical worth. These discoveries served to introduce a second method of applying the pedigree method of selection at Svalöf. Thus instead of basing the isolation of superior individuals purely upon botanical or mor-

phological characters, the principal has become to select a large number of individuals *without special regard to these characters*. Thus where formerly only a comparatively few distinct *forms* were taken, the present practice is to take a large number of *individuals* no matter whether they resemble each other or not. The valuation of the majority of these individuals in so far as yield is concerned is determined by yielding tests conducted with the greatest possible care. This change in method brought with it a still further alteration in the general course of procedure at Svalöf. Thus where formerly mother plants were selected from wherever they could be found, and without special regard to the variety in which they were growing, they are now taken only from well known varieties whose values have been thoroughly proven.



PROFESSOR NILLSON,
In charge of work at Svalöf.

ARTIFICIAL CROSSING.

Following the application of the pedigree system of selection at Svalöf, the enormously composite character of many old varieties quickly became disclosed. So abundant and promising were the constituents (bio-types) of these old races that it seemed quite unnecessary to adopt artificial means of producing a greater variety. It seemed in fact that nature had already provided sufficient material to meet all the legitimate demands of practice. Here again experience seems to have taught otherwise. True, progress has been made in the isolation of superior sorts from old mixed races by simple selection, but this progress has been achieved after

repeated disappointments. A discouraging and note-worthy feature in connection with the work of pedigree selection with cereals, is the difficulty of finding a bio-type in nature which combines the best of all qualities in the one individual. It has indeed been a matter of common observation that very frequently pedigree sorts are outstanding in respect of certain qualities while they are conspicuously weak in regard to others. Artificial crossing has therefore come to be employed as a means of combining the desirable characters of one sort with those of another.

Since the reappearance of Mendel's epoch-making papers on heredity in 1900, great progress has been made at Svalöf both in the acquisition of more exact knowledge of the fundamentals as well as in the practical application of advanced principles. The "combinations" idea which is a central doctrine of Mendel's law has come to entirely supersede the old Nagelian idea of crossing, thus placing the whole problem in quite a different light.

The principle of combining parental characters demands that great care be taken in the choice of parents. Neglect of this rule during the early years of the work at Svalöf is believed to account very largely for the indifferent success which attended crossing efforts during that period. The desirability of handling products of known origin is another factor which has served to bring artificial crossing into greater prominence in breeding work, since the origin of the products of this process alone is capable of being traced. The parentage of the constituents of mixed races must on the other hand be largely an unknown quantity, thus rendering the work in line-breeding a more or less uncertain one.

An excellent example of the usefulness of artificial crossing in breeding work is afforded in the production of Extra Square Head autumn wheat No. II. at Svalöf. One of the main problems in autumn wheat breeding in Sweden has been to obtain a sort which would be sufficiently hardy to withstand winter killing, and which would at the same time be more productive, stiffer in the straw and more resistant to disease than the old wheats commonly grown in the country. Many pedigree sorts were isolated and investigated and a few discovered which were undoubtedly superior to the old races. Two of these *Extra Square Head* and *Grenadier II.* were especially noteworthy. While these sorts are very similar as regards general character they have been found to differ in certain important particulars. Thus the former is more hardy and less susceptible to rust than is the latter, while the latter in turn has shown itself to be a higher yielder and stiffer in the straw than the former. These two sorts were crossed artificially and from among the numerous combinations resulting, one, to which the name *Extra Square Head* was given, was found to unite a greater number of desirable qualities than those possessed by either of the parents. During a four years' test at Svalöf and Alnarp it has given about 18 per cent higher yield than Old Extra Square Head and 8 per cent more than Grenadier II.

From this brief review of the principles recognized in plant improvement work at Svalöf it will be seen that all possible ways of reaching the desired end are employed. Line breeding, artificial crossing and mass-selection each occupies a place and are now regarded as the tripod of progression in the scientific breeding of plants.

Popularizing Knowledge.

By J. C. SUTHERLAND, B.A., Department of Public Instruction, Quebec.



MATTHEW ARNOLD maintained the thesis that the true function of criticism is to make known the best thought of the world and to "create currents of true and fresh ideas." In other words, he taught the doctrine that criticism is not mere fault finding, more or less able, as many supposed it to be, but an important branch of creative literature. To three great English scientists of the nineteenth century we owe, also, enlarged and nobler conceptions of the office and functions of the popularizer of knowledge. The term, "a mere popularizer" has still meaning and special application, but in view of the work of Faraday, of Huxley and of Tyndall in this direction, the meaning and application are restricted to those who are "mere" popularizers.

Faraday's popular lectures at the Royal Institution, on chemistry and physics, did almost as much for the advancement of science as the vast range of his discoveries. His Christmas lectures to children attracted distinguished and learned men. When Huxley began his career as a popularizer, he went to Faraday for advice. He asked how much knowledge of his subject he might take for granted on the part of an audience. Faraday's reply was, "Take for granted that they know nothing at all."

At the same time neither Faraday nor Huxley assumed that only the most elementary principles of knowledge were within the capacity of an ordinary audience. On the contrary, they acted on the principle that scientific facts and

scientific reasoning could reach every man of ordinary capacity and ordinary education, if presented in clear and effective language. Huxley's lecture on "A Piece of Chalk" was not only a splendid example of geological reasoning; it was a work of art. It was attention to literary form, to the method of presentation, which enabled him to gain so greatly extended a hearing for Darwin's "Origin of Species."

Tyndall's addresses, delivered usually to learned audiences but intended for publication, were also marked by great care for literary form. His "Heat as a Mode of Motion" is one of the classics of the language. He tells himself, in the opening paragraphs of his lecture "On the Scientific Uses of the Imagination", of the preparation he had made for this one address. He had gone to the Alps to fit himself physically and mentally for the task, and had taken with him two volumes of poetry, and two other books, to "tune his mind" to the right pitch. Yet he had been an exceptionally ready speaker from his youth upwards.

I offer this very brief outline of a very interesting chapter in scientific and literary history, for the purpose of making two comments of a practical nature in connection with our own Canadian conditions.

The first is that university extension work in Canada has not, so far, made much headway, and that one cause of this, and of the lack of popular interest in the work, may be found in the fact that the literary presentation of knowledge has been insufficiently considered in the movement. It will hardly be

denied that there are too many instances where literary or scientific experts, although first-class men in laboratory and college lecture room, fail utterly when called upon to present their own subjects to a general audience.

The next comment is that there is a great field in our own country for the popularizing of knowledge by the agricultural expert. If institutions like Macdonald College and Guelph are to accomplish their highest purpose, the torch of agricultural science must be carried throughout the Dominion. It is worth carrying, and it is needed. If rural education is to become what it should be, in our eastern provinces particularly, the chief stimulus will be an awakening to the value of scientific knowledge, and this awakening must surely come from the work of the trained agricultural expert who has studied and grasped the principles of popularizing knowledge. It is missionary work of a very high order. It is, moreover, a pressing national policy. Tariffs may go up or down, but Canada's place in world competition depends far more on the question whether or not the general standard of intelligence is to be raised by the diffusion throughout our country

of living knowledge and clear and vigorous habits of thought. It is not in virtue of her tariff, but in virtue of the magnificent quality of her rural education, that little Denmark so vastly outstrips us in her dairy exports. But if knowledge, scientific knowledge, is to be valued, it must be commended by the demonstration of its power, and it is the work of the true popularizer to so command it.

The present writer has frequently thought that a great work could be accomplished from Macdonald College in the rural schools of this Province by means of popular lectures, both to pupils, say, of the model schools and academies and the larger elementary schools during the day, and to parents in the evening. Such lectures, illustrated by experiments, would cost some trouble and care; but I am convinced that they would prove of great value in awakening more widespread interest in the principles and methods of science, and react most healthfully on the schools themselves. It is extension work which would, in time, become rightly appreciated, and create the needed "currents of true and fresh ideas" as to the great principles of scientific agriculture.

Newfoundland.

By PROF. A. W. KNEELAND, M.A., B.C.L.



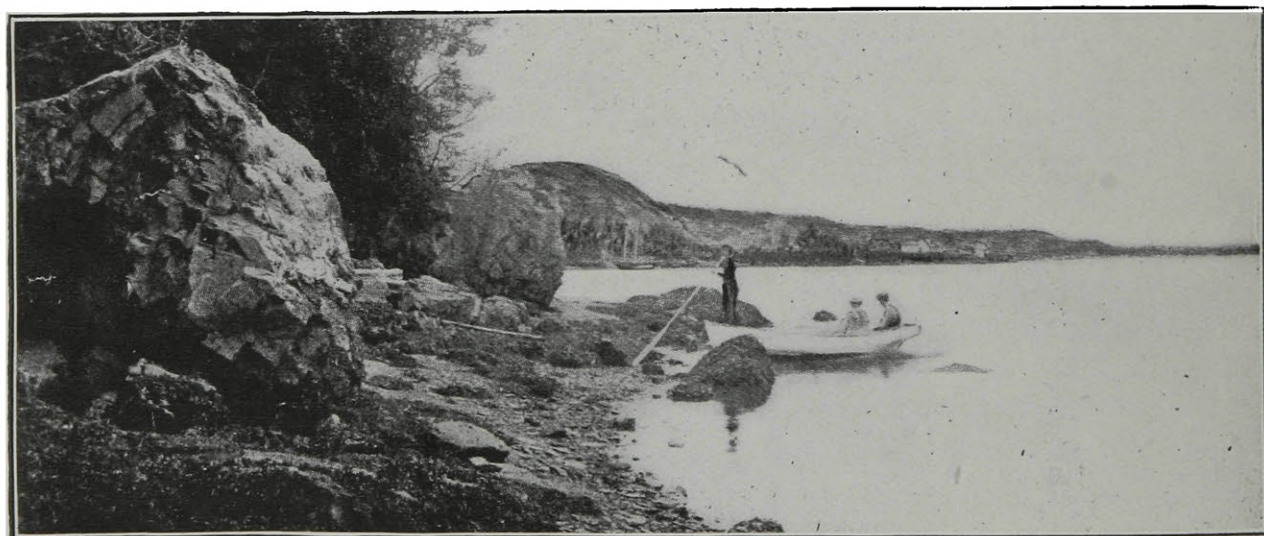
THE ancient colony, as it is sometimes called, lies in about the same latitude as Southern Manitoba; hence it is farther north than the settled portions of the Province of Quebec with the exception of the Gaspé Peninsula.

Being in the same latitude as British Columbia and surrounded by the sea, one, at first thought, would expect to find a somewhat similar climate. But he would soon find out his error, for

tions. It stands aloof from the great Dominion of which, for its own progress, it ought to form a part.

One of our objects in visiting the island was to learn the feeling of the people in relation to this subject and to discover, if possible, what valid objections are made to the proposal to form a part of our Canadian Commonwealth.

In this study, we were greatly assisted by the progressive editor of "The Chronicle," some of the government officers and the Christian Brothers of



BOATING SCENE—BAY OF ISLANDS.

lacking the warm Pacific breezes, and embraced by the arms of the Arctic current filled at all seasons with floating icebergs, Newfoundland, in July and August, the months of our visit, has a climate much like that of Southern Quebec, in May or September; and, consequently, certain kinds of fruit, grain and vegetables will not ripen; and strawberries, our late June fruit, are in evidence in August.

Newfoundland is a land of contradic-

the Roman Catholic College of St. John's.

Our conclusions are, contrary to those usually arrived at, as follows:—

(1) That the rock upon which the Bond Government was wrecked, was not any legitimate objection to Confederation or antipathy towards Canada.

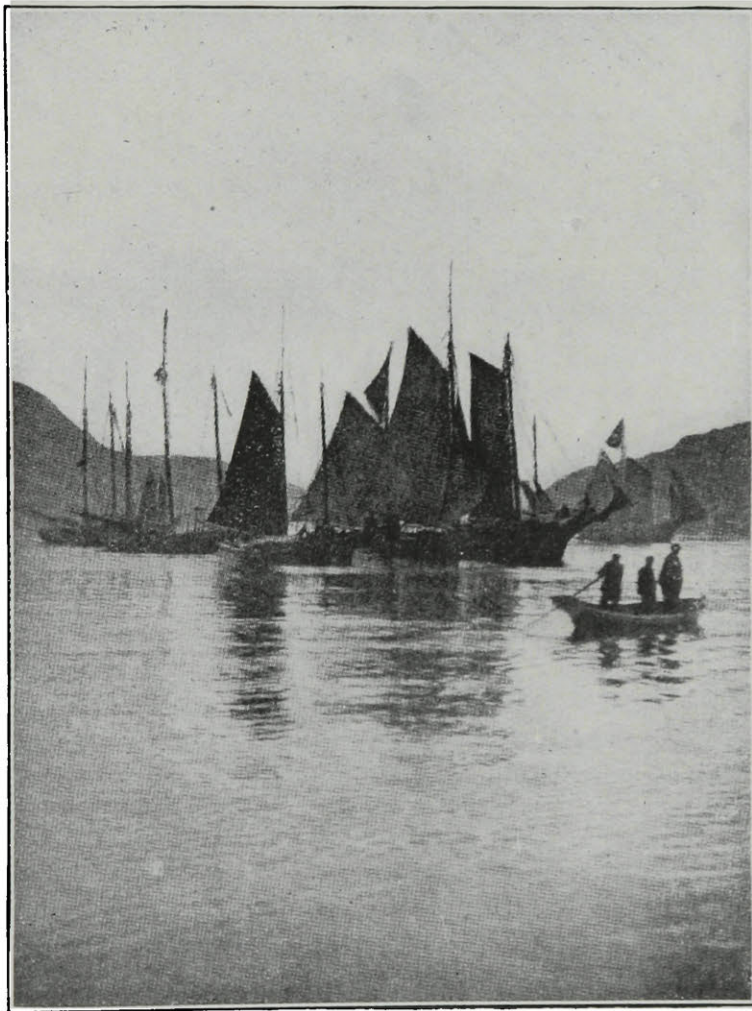
(2) That the Newfoundlanders are intensely loyal to the British Crown and all that binds them to royalty and what it stands for.

(3) That they love their iron-bound coasts and cold, damp climate; but

(4) That being largely of Irish descent, they possess the proverbial Irish love to govern themselves, and prefer the cod-fish of their coasts with imported bread and vegetables, so long as they can be their own masters, to all of progress and comfort that annexation to the Domin-

the usual aspirations of men, but of almost every phase of life, scenery, products, etc.

For example, the summers are cool; and the winters are mild; the trees are stunted and often twisted and gnarled; the cities as a rule have no sidewalks of wood or concrete, but some of stones and gravel along which people rarely



FISHING SCHOONERS—ST. JOHNS.

ion would bring, with the loss of that sacred right.

So long as this feeling is predominant, argument is useless; and the great natural resources of this island will remain undeveloped, for its isolation is too great and its opportunities too few to tempt capital to its shores.

I have said that this is a land of contradictions; and this is true not only of

walk, taking to the middle of the streets as a preference.

Young people do not congregate on the corners, but in the middle of the streets, so that one who, being a tender-foot, follows the rough and uneven foot-path, is rarely, if ever, obstructed in his passage.

The horses are small and hardy and have been diligently taught to turn to

the left instead of the right in passing others on the road.

Even the early-morning marketer carries home his ever-present codfish openly by the gills rather than in a basket as would be done in our own Canadian towns; and on his tables, this denizen of the deep appears religiously three times a day.

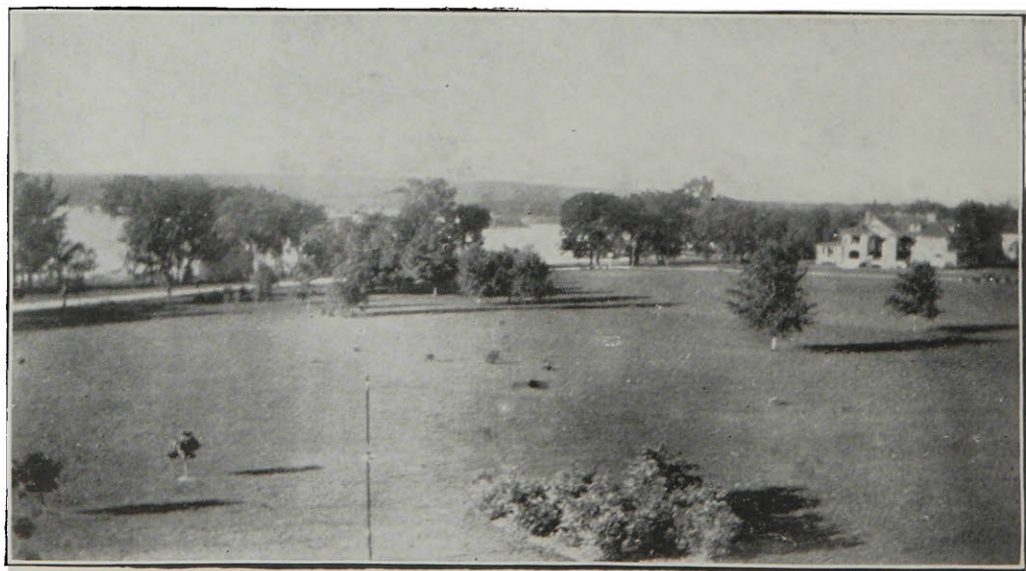
The public squares are in ruins; and even the grounds of the vice-regal representative in St. John's are grown up to coarse, tall grass and unsightly weeds.

As for Newfoundland dogs, we did not see a single good specimen on the south or east of the island, but were told that some might be found on the North Shore or in the remote interior.

We visited the annual regatta on Quidi Vidi Lake, about a mile from the city of St. John's; and here again everything was topsy-turvy, for every event of the long day was the same: namely, a six or eight-oared race in a long racing boat.

Cheap whisky, owing to the proximity of the French Islands, seems to be the only cheap thing on the island except codfish; and drunken men staggering along the streets or being carted home like logs of wood in dump-carts, were almost constantly in view. After a holiday all business was practically suspended to allow them to sober up.

Of the courtesy, kindness, honesty and quaintness of the people, we cannot say too much. Of the commercial enterprise of one or two firms, for example the Bowering Bros. and the Ayers, the people may well be proud; and of the single railway, traversing the whole island, and of its promoter, one must speak well; but of the educational system which was our especial study and of which we crave permission to speak at a future time, and of the general condition of trade and development of natural resources, one could not reasonably boast.



SCENE ON THE CAMPUS.

Bluffing.



BLUFFING is an art, a fine art, and one that has many followers. Some are artists, men worthy of commendation for their clearness and knowledge of human nature, others are only entitled to condemnation for their crudeness. The majority are just common everyday bluffers who bluff along very well for a time and think they are great fellows, until, some day they wake up suddenly from their dream to the realization that their bluff has been called.

My story has to do with one of the first mentioned class—a master artist of the high art of bluffing. He once lived in a small European town (once not now) and was by profession a lawyer. A lawyer with no practice nor money but with plenty of assurance, the kind that in American parlance is called “cheek.” The lack of money was an inconvenience to him as to most men, and after vainly waiting two weeks for business to come to him he decided to make some for himself; something that would not only relieve the necessities of the moment but also lay the foundation for future success—for this man was a firm believer in progress.

After several hours thinking he decided, as many other men have done, that the most convenient way to obtain money without working for it would be to marry a rich man's daughter and get control of her fortune. Yes, that would do all right for the money side of it, provided, in technical phraseology, that the aforesaid rich man's daughter could be persuaded to marry him.

But money alone would not be enough for this young optimist. Although he had not the slightest pretensions to a wide reputation, yet his chances were

good. He had never lost a case and that was more than many of the most famous lawyers could say. The fact that he had never gained one, nor for that matter, had one to gain, did not trouble him in the least. That was beside the question, not of it.

After deliberate cataloguing of the rich girls he had seen or heard of, he decided that the daughter of Sir J——, who had the double blessing of thirty millions and an only child, would suit him very well. He had met her once at a charity tea, and although she was not quite all that he would wish for in appearance, still the beauty of her bank account would compensate in a very large measure for her lack of personal attractions. In a neighbouring city was a great banking firm that had the country-wide reputation for the successful management of large financial deals involving huge sums of money. A partnership in this firm, the young lawyer decided, would be a good thing to have, and aid in winning the heiress and the fame he counted. Accordingly he decided to call on the senior partner and inform him of his desires.

Dressing himself carefully he called at the office of the banking firm and asked to see the senior partner. The discreet clerk made some subtle inquiries regarding the nature of the business, to which the young lawyer haughtily replied that his business was of great importance and concerned the business interests of the firm in a vital manner. Accordingly he was shown into the senior partner's office.

The senior partner was a bland, blank faced man, who through long years of experience, had learned never to betray any feeling no matter what happened. Even he was slightly surprised, however,

when his visitor coolly informed him that he would like to become a partner in the firm of Blank, Blank & Co., Bankers. Concealing his surprise, however, and inwardly wondering whether his visitor had just escaped from a mad-house, he blankly inquired the reason for the desire and what qualifications the young man had to fit him for the position. The young man hastened to explain, and the substance of his explanation was that he was a lawyer and thought that his legal knowledge would be of great benefit to the firm. Incidentally he mentioned that his social position was of the best as he had received assurance that his suit for the hand of Lady Mabel, daughter of Sir J——, was very favorably received. The senior partner was a man of long experience, as I have said, and this latter hint was not lost on him. The idea of large capital was not displeasing, so his tones were not unfriendly when he bade his visitor good morning with the assurance that he would give his case most careful consideration.

The young man's next call was upon Sir J——, of whom he formally asked permission to pay his addresses to his daughter. "Want to marry my daughter, eh!" snapped the somewhat puffing old peer, "and may I ask who the devil you are, Sir, and why you want my daughter instead of the grocer's? Who are you, Sir?"

Again the young man hastened to explain. He was a young lawyer not very rich at present but with the very best prospects for the future, in fact he had just received partial assurance that his appointment as legal advisor and partner in the firm of Blank & Co. would be announced very shortly. This and a number of like expressions regarding his unbroken success with cases and his prospects as a member of the firm

had the desired impression on the old peer, who, to tell the truth, had begun to be a little bit worried about what kind of a man his somewhat aged and very acid tempered daughter would get. At any rate he thawed several degrees and said he would consider the young man's application and see him at a later date.

Back hastened the young man to the offices of the senior partner and announced that everything was now settled, that Sir J—— had promised his consent to the marriage and that he and the young lady were now almost the happiest people on earth. All that was needed now to complete their happiness was the assurance that he would get the position he desired. With another hint regarding the large amount of capital his future wife would have, the young lawyer returned to his lodgings to await the results of his bluffing and studies of human nature. Shortly afterwards the senior partner received cautiously worded inquiries from Sir J—— regarding the young man and his future prospects, which inquiries the senior partner, with an eye to the prospects of his firm, replied to just as cautiously but with a tone favorable to the young man's case. The outcome was an invitation for the young man to dinner with Sir J—— at his club a few days later.

There is little more to tell. The young man continued to play off one party against the other until he won both the heiress and the partnership, and in addition, a still greater belief in his own abilities. He kept on bluffing right through life and won a peerage, a fortune of his own and a world wide reputation as one of the cleverest men of his age. His capital was "cheek" and the success he attained by the use of it gave him the undeniable right to be called an M.A. of the high art of "Bluffing."

R. P.G.



Gleanings from the Short Course in Field Crops at Macdonald College.

By G. H. CUTLER, B.S.A.



AMONG the many agencies which build up a healthy, progressive agricultural spirit in any farming community the Short-Course is perhaps one of the most potent. It meets the needs of the agriculturist admirably in that it is offered during the winter months at the college where facilities are the best, and for a sufficient length of time to permit of interchange of thought and ideas with neighbour and teacher. It gives rise to an awakening influence and an enquiring, discontented spirit which is invariably accompanied by nobler endeavour.

The course as presented this year admitted of a study of the common cereals, grasses, clovers, roots and forage crops with particular attention directed to their culture, adaptability and utility. Night sessions were held which often became open conferences on such topics

as crop rotations, soil management, drainage and fertilizers. These evening meetings proved very helpful, since they afforded the students special opportunity for the discussion of problems growing out of their own experiences, as well as questions which arose in the work of the day-sessions. It was not to be expected that an eleven-day short-course would afford ample time for a thorough study of all the details relative to soils and crops, yet by means of a careful discriminating process those phases were discussed and emphasized which seemed of the most vital concern.

The Oat crop being pre-eminently the most extensively grown in the Province of Quebec naturally received the closest study. Each student was provided with representative samples in grain and straw for a comparative study of such economic peculiarities as length and strength of straw, per cent. hull, time

of maturity and productive capacity. Practice in judging was also furnished in threshed samples of different varieties and grades. As a rule explanations on all points were forthcoming and deductions drawn so as to enable the student to become familiar with the underlying principles and their application to other related problems.

Since the Wheats do not hold the same relative importance in the economy of crop production in Quebec, little

cheuri type has demonstrated its superiority in adaptability over the other classes and its yield exceeds in pounds the most productive Oat.

Growing grains in combination would seem to be a very common practice among farmers, yet many queries were asked regarding the best proportions and the most useful combinations. Experimental work with some thirty combinations in varying proportions demonstrate that Mensury Barley and



SHORT COURSE STUDENTS JUDGING CLOVER SEED.

attention was given other than to discuss briefly the economic value of the different classes, including Milling and Macaroni Wheats, Emmer and Spelt.

The acreage devoted to the production of feeding Barley does not equal that of Oats, yet two sessions were given to its study. In much the same manner was this crop dealt with in order to make clear the relative value of each class and type. The six-rowed Mands-

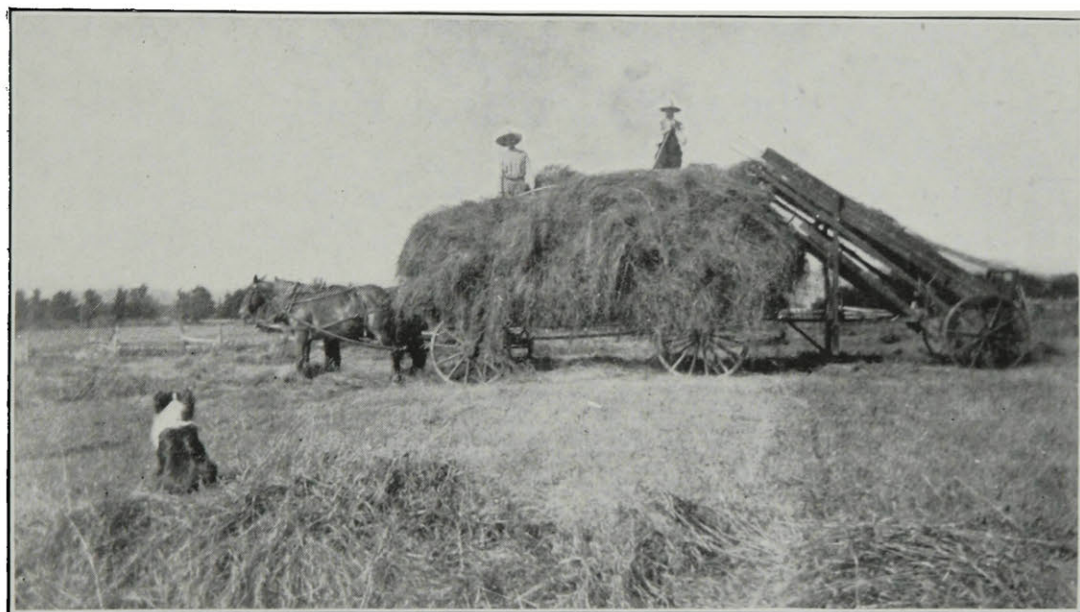
Daubeney Oats sown in the proportion of one and a half to one bushel respectively give the highest yields. Wheat does not mix well with any variety of Oats or Barley since the combination does not ripen uniformly. Peas on the other hand are often used in mixtures, but unless they are sown thinly they will pull down the crop and make harvesting difficult; and moreover it is not easy to obtain a variety which will ripen well

with either Oats or Barley. The above-mentioned combination ripens admirably together hence its yield and value for feeding purposes.

Clover growing for the production of both hay and seed and its relation to soil fertility was made a feature of the course. Twenty sacks of clover seed grading No. 1 grown on the College farm and valued at twenty dollars per sack were placed in the class room as a tangible proof of the wonderful possibilities to be recognized in the clover plant. A minute discussion of the

indicate hence the necessity of making a personal examination before purchasing.

The grass crop is the one crop which is most neglected, and yet grass at the right stage and in abundance has no superior as a dairy ration. Permanent pastures on arable lands are not practicable, much less profitable; therefore a combination of meadow and pasture preparation seems really the thing. Too often Timothy is used alone to serve this dual purpose, which is a mistake, since Timothy is not primarily



HAY SCENE.

advantages of this crop, the methods adopted in cutting, harvesting and threshing for seed was indulged in. Time was also devoted to the study of the seed itself in order to ascertain the salient features of a first class sample of high growing capacity. By means of the microscope the student was enabled to study color, size and plumpness of seed and detect impurities and thereby estimate the relative worth of actual grades at present in commerce. The grades studied showed a wider range in real value than the price would

a pasture grass nor does it restore soil fertility. Mixtures of clovers and grasses for permanent and temporary purposes were presented to show that much improvement in quantity and quality of hay and pasture may be easily effected by a judicious choice.

Considerable time was devoted to the study of root crops. Attention was directed to their inestimable value in dairy practices. On account of their high water content and easily digested dry matter, roots are useful in the economical feeding of concentrates and

coarse fodders. Many varieties commend themselves, but one combining yield, quality of dry matter and freedom from undue pronginess renders best satisfaction.

A period was given to the forage and soiling crops most useful in supplementing dry pastures and the common stall feeds. The Winter Rye, Oat, Pea, Vetch and Alfalfa can all be used most profitably for such purposes. If used

properly these crops will provide a continuous supply of green feed from early spring until late fall, and thereby alleviate particularly such distressing conditions as prevail during hot, dry periods of the summer.

The Short-Course is, we believe, more appreciated each year and we hope to see it becoming the "Mecca" to which the farmers of Quebec shall turn their eyes for information.

The Ottawa Seed Fair.



NOT by any means the least interesting part of the Live Stock and Poultry Show held annually in Ottawa is the display of Seeds.

Back in the year 1901 at the suggestion of a wide awake farmer and by the energetic work of Mr. Geo. H. Clark, the present Seed Commissioner, this branch of the fair was introduced. In that year one bag of grain constituted the exhibit. This small beginning grew the next year into some twenty bags and since then the growth has been continual, until this year, from the 16th to the 19th of January, a very creditable display of grain of excellent quality was forthcoming.

The exhibit was divided into two parts. The one being the grain from the prize winning fields in the Standing Crops Competition, and the other the general Competition open to all.

Oats as usual formed the largest class, those of the Banner type coming well to

the fore. Then came barley, fall and spring wheat, peas, buckwheat, corn, timothy and clover seed, all well worth the prize money. Some very good potatoes were also exhibited.

Prof. C. A. Zavitz of the O. A. C. and T. G. Raynor, B.S.A., Seed Inspector for Ontario, were the appointed judges.

In the judging now-a-days great attention is being given to the purity of the sample. In fact this point, coupled with weight per measured bushel, is made the determining factor with a great many of the judges of to-day.

If we might be allowed one suggestion, in view of the fact that the Seed end of the Fair is becoming so much in evidence, should it not be known as the Ottawa Winter Fair similar to the one held annually at Guelph.

The prospects look bright and it is possible to predict both a promising and useful future for the Fair held each winter in Ottawa.

The Rotation of Crops.

By R. SUMMERBY, B.S.A., Assistant in Cereal Husbandry.



THE rotation of crops has been advocated as being an essential to successful agriculture since times immemorial. Even as far back as Cato, Columella and Virgil, rotations of one sort or another were advised. At the present time a systematic rotation of crops is considered absolutely necessary to good agriculture by all the best authorities.

In spite of these facts, however, the data collected by the Conservation Commission reveal the startling fact that not more than two per cent. of the farmers of the province of Quebec follow what might be called a systematic rotation of crops.

A multiplicity of reasons might be assigned for this state of affairs, but perhaps the most important ones are a lack of knowledge of the principles underlying rotation, and a lack of familiarity with their crops and soils on the part of the tillers of the land.

In discussing this subject, it is necessary to differentiate between a "Rotation" and a "Systematic Rotation." A rotation may mean, and too often does mean that crops follow one another in a certain order, and without consideration of the peculiarities of crops, and soils. A systematic rotation, however, is one in which each year while a crop is being grown, the land is being fitted for the crops of the following years. In such a rotation the crops are, as it were, working together, the one helping the other and the other helping the one, and the whole with a view to the largest and most economical production.

At the basis of all rotations lies the fact that plants differ from one another;

they differ from one another in their demands on the soil both chemical and physical; they differ with regard to their root system, depth of feeding, their moisture requirements, their time of feeding, etc.

Most plants impoverish the soil, but a few enrich it; some spoil its physical condition while others improve it in that regard. Many crops favor the growth of weeds while others either are able to hold the weeds in check, or require such cultivation and treatment as will prevent their growth.

All these differences fit plants for different places in rotation and a well arranged rotation is one in which the strong points of one crop, as it were, fit into the weak points of the succeeding or preceding crops in such a way that deficiencies are reduced to a minimum.

A crop that requires a large amount of one element should be followed by one that requires less of that element and perhaps more of another. A crop that is shallow rooted should be followed by a deeper rooted crop so that plant food which may have escaped the shallower roots may be caught by the deeper feeders, and that the nutrients in the soil may be used to a greater depth. Crops that are exhaustive on the soil should be followed by a so-called soil restorer. Crops that are conducive to the growth of weeds should be followed by a weed-destroying crop.

It has been mentioned above that some plants are soil restorers; among these are the leguminous plants which include, alfalfa, clovers, beans, peas and vetches. These by means of nodules on their roots are able to make use of the nitrogen of the air, (which to other plants is unavailable) in building

up their stems and roots. These latter when they decay leave large quantities of nitrogen in the soil.

As nitrogen is the element most likely to be present in insufficient quantities, and since it is the most expensive as a fertilizer and the most valuable in building plant and animal tissue, this is a very important asset. Hence a leguminous crop should be grown as often as possible in a rotation.

Apart from the fact that legumes enrich the soil in nitrogen some of them have deep feeding tap roots, which make use of the subsoil to a considerable depth for obtaining their mineral elements, and also of any other plant food that may have leached below the depth of ordinary roots; then when these decay a large amount of these mineral elements is left in the top soil. In this way such plants as red clover and alfalfa enrich the soil in mineral constituents and so are doubly effective as soil restorers.

Rotation, too, is very intimately related to the weed problem. A crop of any kind always favors the growth of weeds whose habits are similar to its own, especially if the weeds ripen a little early and shed some seeds on the ground. Hence, if one crop is grown continuously, weeds of that particular habit will flourish and may become difficult to control.

By means of a rotation, however, where crops of different habits follow one another, this will not occur, and if a hoed crop is introduced into this rotation at frequent intervals, little chance is left for weeds to establish themselves providing fence corners, ditches, stone-piles and such like, are kept free from weeds and that weed seeds are not introduced through such sources as in seed.

Another consideration favorable to the systematic rotation of crops is that

it hinders the growth and spread of insects and fungus diseases. As is the case with weeds, these have certain life habits which they must follow in order to live and thrive, and if this life habit is interfered with they are either checked in their development or killed altogether.

It is true, too, that some fungous diseases live in the soil for a number of years, hence it is necessary that the host plants be not grown until the fungus has had time to die out. Further, many insects are killed in the processes of cultivation which go with rotation. It has been truly said that rotation is the farmers' best insecticide and fungicide.

One more advantage of rotation is that it furnishes the farmer with the variety and kind of feeds that are necessary to the successful feeding of live stock.

A good rotation will then keep weeds in check, to do which, it must have in it a hoed or cultivated crop at frequent intervals; it must maintain the fertility of the soil, for which purpose, legumes must be grown sufficiently often, and it must produce the variety of feeds which the farmer needs for his particular line of farming; the whole with a view to the largest and most profitable production. In so doing it will prevent the growth and spread of insects and fungous diseases, and will distribute the labor more evenly throughout the year, thus enabling the farmer to keep help during the whole season.

If the farmers of the province were as a whole to adopt systematic rotations, the agricultural output would without doubt be greatly increased. Cleaner and better farms, with the farmers in a much more enviable position than they now are, would be the results.

The following is a list of the students who registered for the Short Course in Live Stock and Cereal Husbandry:—

Arnold, James E.,	Grenville, Que.
Armstrong, Elwin H.,	Shawville, Que.
Bell, Walter,	Trout River, Que.
Boving, George,	Macdonald College, Que.
Boyd, M. S.,	Tayside, Ont.
Browne, R. Russell,	622 Sherbrooke St., W., Montreal, Que.
Calder, John J.,	Bainsville, Ont.
Crooker, George M.,	Ste. Anne de Bellevue, Que.
Curtis, Knowlton I.,	Stanstead, Que.
Dalziel, Edelsten,	Ste. Agathe des Monts, Que.
Denis, Cleophas,	St. Norbert, Co. Berthier, Que.
Elliott, W. H.,	Tatehurst, Que.
French, James Raymond,	Cookshire, Que.
Groulx, Paul,	Isle Perrot Nord, Que.
Hall, Eugene T.,	East Farnham, Que.
Hall, William,	Cornwall, Ont.
Hand, Allen F.,	Greenwich, Washington Co., N.Y.
Hawley, Clarence H. L.,	Nutt's Corners, Que.
Henry, C. R. G.,	Strathcona, Alta.
Hyde, Charles J.,	Huntingdon, Alta.
Keir, James E.,	Riverfield, Que.
Long, H. W.,	Milkish, N.B.
McCutcheon, Robert W.,	Leeds Village, Que.
McDougall, Robert,	Tatehurst, Que.
McEwen, Howard A.,	Maxville, P.O. Ont.
McKell, John C.,	Riverfield, Que.
McKell, Matthew A.,	Riverfield, Que.
McLeod, Roderick,	Laggan, Ont.
Marshall, Archie C.,	Tatehurst, Que.
Martin, Frank W.,	Dewittville, Que.
Mills, Raymond R. J.,	East Angus, Que.
Robinson, G. Lancelot,	Mascouche Rapids, Que.
Rodger, David J.,	Genoa, Que.
Ross, John Gordon,	Boharm, Sask.
Saunders, Douglas J.,	Bury, Que.
Sclater, D. A.,	4876 Sherbrooke St., Westmount, Que.
Smith, Gordon M.,	P. O. Box 10, Lachute, Que.
Ste. Marie, J. Antoine,	Moe's River, Compton Co., Que.
Suffel, R. Arnold,	Inkerman, Ont.
Summerby, Charles F.,	Box 204, Lachute, Que.
Sweet, Thomas,	Cherry River, Que.
Thomson, J. E. Duguid,	Delaware, Ont.
Trenholme, J. G.,	440 Clark St., Montreal, Que.
Wentworth, Arthur B.,	Sydenham Place, Que.
Wood, Edgar G.,	Genoa P.O., Que.
Wilson David Henry,	Marathon, Ont.



The Box and the Barrel as Apple Packages.



THE apple packages which are at present used in Canada, present to our fruit growers an opportunity to place their apples upon the market in an attractive, handy, and profitable manner. We have in general use throughout Canada, the box with an inside measurement of 20 x 11 x 10 inches, and the barrel with inside dimensions of 27 inches between heads, 17 inches head diameter, and 18½ inches middle diameter. Although it is practically an impossibility to draw a hard and fast line that would indicate to the grower where each should be used, it is safe to say that each is suited for a different class of fruit and each fills a comparatively different requirement of the market.

There are among the consumers practically three classes. One to whom the price is a secondary consideration, while the quality and attractiveness of the fruit and package are the primary factors with which they are concerned. These customers take strongly to the box as a package, and, as they will buy only the best fruit it follows that

the best policy for supplying such a demand is to place the best grades of finest dessert apples upon the market in boxes. On the other hand we have the customer who does not require a large amount of apples at one time, and, although he may not be able to pay a fancy price for his fruit, he will in time form the demand for the bulk of our apples. This customer requires fair fruit in small quantities at a reasonable price. He would undoubtedly take the number one apples of our ordinary varieties, and the number twos of our better dessert apples packed in boxes, at a price that would realize to the fruit grower about one and a half times as much as if the same quantity were packed in barrels. The third class of consumers are those to whom the price is the primary consideration. They are also able to dispose of a considerable quantity providing they can obtain it at a low price. To this class of customers the apple grower will have to sell his more or less inferior fruit packed in barrels, and although they will not command any thing near as high a price as his better fruit packed in boxes, he will undoubtedly

be able to get rid of such fruit at an easy though comparatively small profit.

From this it will be seen that it is principally a question of demand that should influence the apple-grower in the use of the box and barrel. If a certain variety from a district has found favor on the market as a dessert apple, the grower should by all means place it before the consumer in well packed and attractive boxes. On the other hand, the same variety, when grown in another locality may not reach as high a state of perfection and consequently be in obscurity in that market; it would probably be advisable for the grower from this district to

place that particular variety before the consumer packed in barrels.

It will therefore be seen that what varieties and grades to pack in boxes, and what to pack in barrels, is entirely a question of locality and market demand. It can safely be said, however, that the grower should pack his best fruit in boxes and reserve the barrel for his comparatively inferior grades and varieties; but as both quality and demand differ in different districts, it resolves itself into a question that must be worked out by the grower of each district and his consumer, to the satisfaction of the latter, and the profit of the former.

F. S. B., AGR. '12

Thinning of Fruit.



IN discussing the question of thinning fruit, the writer wishes to bring before the reader a few general facts which help to make this matter an important one.

The classes of fruits usually thinned are the large fruits, such as apples, peaches and pears. Plums are occasionally thinned, but this is not necessary. Among the bush fruits, such as raspberries, gooseberries and currants, little thinning has been done, but a few experiments have been tried with currants.

Experiments have been worked out at Geneva and Cornell in New York, at the New Jersey Experiment Station, and at a few other stations in the Western States. Commercial thinning is practised successfully in the Province of

British Columbia, and in Washington, Oregon, and a few other Western States.

Why should thinning be done is a question likely to be asked. The reasons for thinning are to get rid of all insect-infested and diseased fruits, thereby producing a better color, better size, better quality and a higher market value. Thinning is also practiced to lessen the tendencies of a tree to overbear and to try to obtain a more even production each year, or in other words to bring about a regularity of production.

As was mentioned before, some experiments were carried on in thinning currants. The writer does not wish to deal with those experiments except to say that where the thinning was performed, the fruit obtained was larger, heavier and of better quality. In experimenting with apples at Geneva,

N.Y., it was found that the percentage of first class fruit was increased, while the percentage of second class was decreased where the thinning was done.

Since size, color and quality are important factors in marketing fruit, and because thinned fruit is more likely to have these good qualities, let us therefore thin our fruit to produce this higher market value. Thinned fruit should be marketed only in boxes of first class or fancy grades, but never in barrels, because they take away from the general appearance.

In those regions where the fruit crop is systematically thinned, a very uniform production is obtained. This fact is especially true of peaches grown along the Michigan Lake shore district and in other places where thinning is practised to any extent.

With regard to methods, there are many. The chief thing is to get rid of the inferior fruit and prevent the re-

mainder from touching each other. As to time, any time during the third or fourth week of June will be early enough to commence thinning.

Perhaps the largest and most important question is, "Does it pay?" In answer to that question let me quote one of America's noted horticulturists: "It has been demonstrated time and again that no work in connection with fruit growing pays better than thinning. It not only gets rid of the inferior fruit and produces superior fruit, but it also tends to save the energy and vitality of the tree. Persons complain that thinning is expensive and laborious. This is true, but it is a fair question if there is anything worth the having, of which the same might not be said."

If this operation pays, and it pays well in the West where it is practised to a great extent, there is no reason why it should not be successfully practised here in the East.

M. H. J., Ag. '13.

Hints to Exhibitors of Fruits and Vegetables.

HAVE AN IDEAL.



TO be most successful, the exhibitor of fruits and vegetables must have a clear and very definite understanding of what the class, into which he intends entering his exhibit calls for. In other words, he should have a vivid mental picture of the ideal specimen or specimens of that class. Of course, ideals will differ. We often find the highest authorities disagreeing as to just what is the ideal in any given class. However, because such

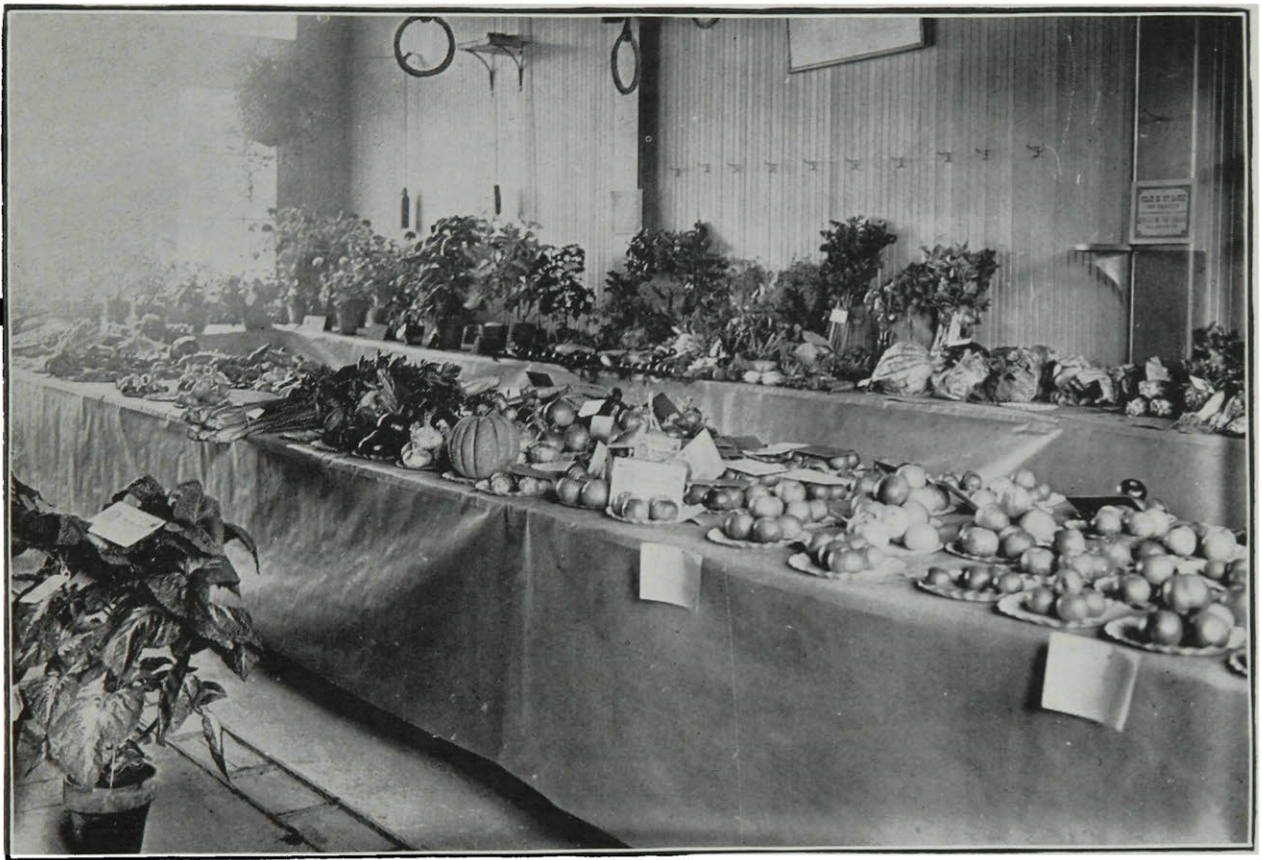
disagreements do occur, is no reason for each exhibitor not having his own ideal.

SELECT TO THE IDEAL.

With a clear mental picture of what is wanted before the mind's eye, the next, and by far the most important step, is the selection of the exhibit. It is at this critical point that many exhibitors lose the prize. It is no small task to select the *best* specimen of fruit or vegetable from among a large number. Selecting the best single specimen presents a great deal of difficulty, but such diffi-

culty is as nothing when compared with that of selecting a group exhibit. Bear this in mind—*Uniformity is of paramount importance in a group exhibit.* Uniformity will cover a multitude of minor defects. Choose a single specimen that conforms to the ideal and then select to this ideal.

and the time when it comes under the judge's eye, that the greatest carelessness is shown. How often at our fruit shows do we find nice, large, well developed specimens of apples which have no chance of winning a prize in a class competition, simply because they are covered with bruises and breaks in the



A FRUIT EXHIBIT.

EXERCISE CARE IN THE PREPARATION AND HANDLING OF THE EXHIBIT.

Although an over-amount of preparation—the doctoring of exhibits—is to be discouraged, yet a certain amount of trimming and cleaning is necessary for some exhibits. This matter is usually pretty well attended to by most exhibitors. It is in the handling of the exhibit, between the time of its selection

skin? A case in point came under the notice of the writer at the Toronto Fruit and Vegetable Show. A group exhibit of cauliflowers, which would have easily have taken first prize, was necessarily condemned because one head had a blotch of mud upon it. It had been dropped by some careless person. Many a prize is lost by lack of care in handling the exhibit.

H. B. D.

Winter Meeting of the Pomological and Fruit Growing Society.



THE Annual winter meeting of the Quebec Pomological and Fruit Growing Society was held at Macdonald College on Dec. 5th and 6th.

The meetings were attended by representative fruit growers from all parts of the province and besides these the two Senior Years from the La Trappe Agricultural College were also present.

The exhibition of fruit was conceded to be far superior to any similar exhibit held in the province, and the way in which it was arranged showed the ruddy Fameuse and MacIntosh Red to great advantage. For the production of these two varieties in colour and quality, Quebec leads the world. This was strikingly brought out by a comparative exhibit, in which were displayed some Quebec Fameuse beside some from B.C. and others from the Royal gardens in England. The Quebec Fameuse were easy winners.

There was one plate of fruit which aroused a great deal of curiosity, and considerable comment. It contained apples which were half Ben Davis and half Golden Russet. These peculiar fruits grew on an old tree which some years ago had been top grafted to Ben Davis and Golden Russet. During the operation the scions somehow got mixed and as a result the two varieties were scattered promiscuously over the tree. This season the tree bore fruit which was distinctly Ben Davis on one side and Golden Russet on the other. This seems to be one of the few things which fruit men find difficult to explain. The specimens were taken by Prof. Macoun

who intends to plant the seeds with hopes of producing a new and valuable variety.

The meeting was called to order sharp on time. An address of welcome was given the delegates by Dr. Harrison, in which he congratulated the fruit growers on the enthusiastic way they were meeting the many difficult problems which confront them, and on their very evident success. He believed that if the fruit men, the vegetable growers and the florists were to unite and hold an exhibition in Montreal, on a large scale, such as is held in Toronto it could be made a financial success, and would attract wide-spread attention.

In his address the President, Rev. H. A. Dixon, spoke at some length on the advancement in fruit growing made during the past few years, and the hope and possibilities for more rapid advancement in the future. He emphasized the need for more information and made some valuable suggestions as to how this information might be obtained.

The next speaker was Mr. A. Gibson, Asst. Entomologist, Central Experimental Farm, Ottawa. He dealt chiefly with the habits and methods of controlling the plum curculio, the apple maggot and the codling moth. He showed that it was impossible to control these insects by spraying alone, and emphasized the necessity for clean cultivation in orchards and the gathering up and destroying of all windfalls.

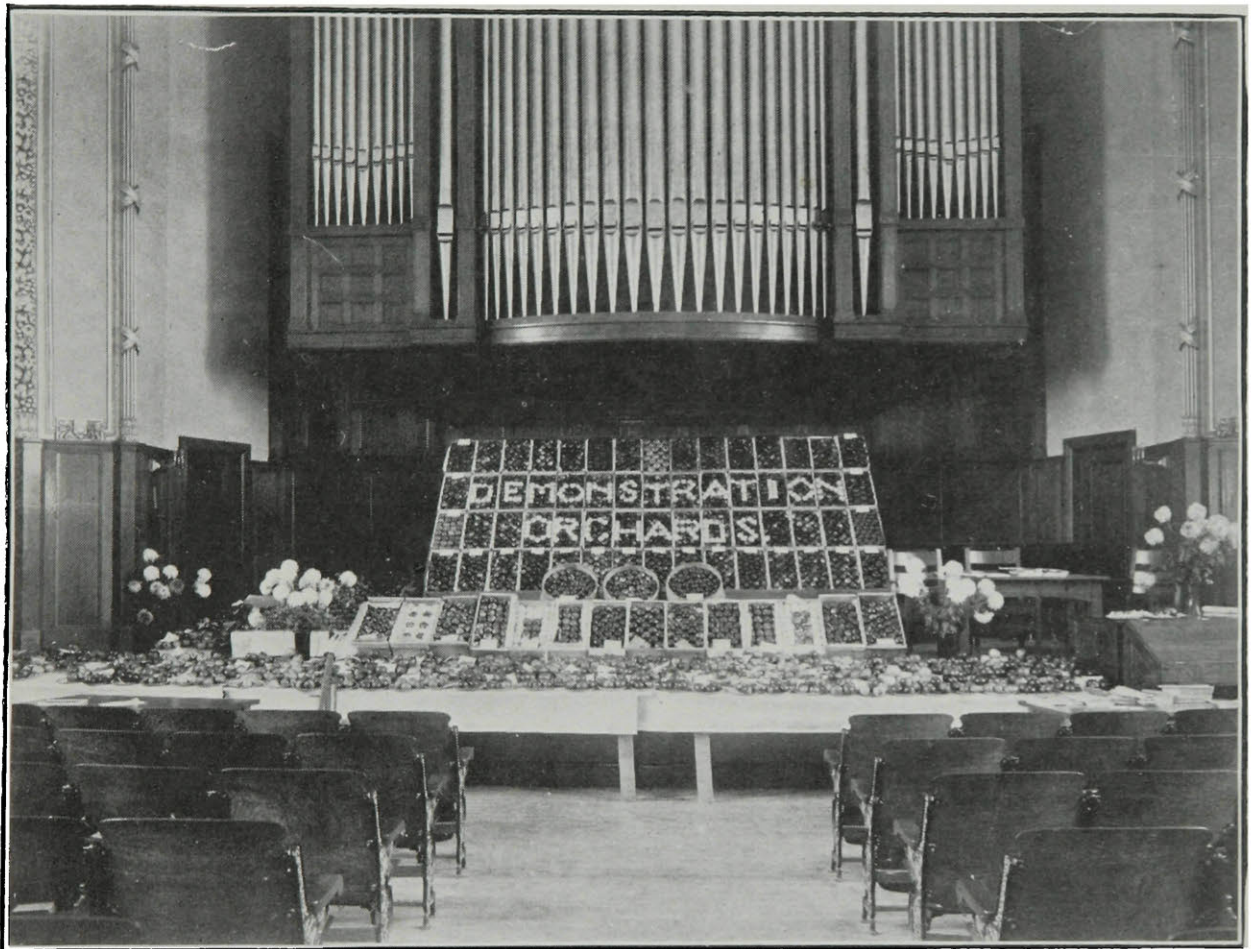
A very interesting paper was given by Prof. L. Caesar on "Spray Mixtures for Orchards," in which he made a com-

parison of lime sulphur and Bordeaux mixture. He said that while Bordeaux mixture was the better fungicide, Lime Sulphur had an insecticidal value which gave it a much wider field, and it had an additional advantage in being more easily prepared. He thought that in a few years it would replace Bordeaux mixture entirely.

of the mixture to 30 gallons of water is used.

Lead arsenate is the only arsenical poison which can be used with lime sulphur. About $2\frac{1}{2}$ lbs. to 40 gallons will do very effective work.

The addresses on different subjects caused a great deal of discussion by which many interesting and valuable



FRUIT EXHIBIT—THE POMOLOGICAL SOCIETY.

The formula which is now used by him is 50 lbs. lime, 100 lbs. sulphur and 40 gallons of water. This makes a concentrated spray with a density of about 1.32 specific gravity. For the first application in the spring, just before the buds burst, this concentrate is diluted in the proportions of one gallon of the lime sulphur to ten gallons of water. For the subsequent sprays, just before and just after blossoming a dilution of one gallon

points were brought out. These discussions are without doubt the most instructive feature of the meetings.

We were very pleased to hear from Mr. F. E. Buck, one of our Macdonald Graduates of Class '11, who is now in charge of the Arboritum at the Ottawa Experimental Farm. His subject was, "Flowers in general and their relation to the National life." He was of the opinion that the commercial spirit tended to

rob life of its poetry and that a knowledge of what to plant, when to plant, and how to plant, was the great panacea which would solve this social problem.

On Wednesday evening we were favoured by a very interesting and enjoyable address, from the Hon. Martin Burrell, Minister of Agriculture. He spoke of his native province, British Columbia and by comparing East with West, their conditions, successes, and failures, gave pointers which should uplift the fruit growing industry in the province.

Several musical selections were delightfully rendered by the Macdonald Orchestra, under the auspices of the Horticultural Club.

The Pomological Society has done, and is doing much for the advancement of fruit growing in the province. Last year through the efforts of this society a Government grant was obtained and four demonstration orchards were established—one at St. Hilaire and one at St. Joseph du Lac in the French sections—one at Covey Hill and one at Abbotsford in the English sections. These orchards were a new venture. The season was rather unfavourable and the crop of fruit light, but such results as were obtained were most encouraging.

During the sessions the following resolutions were discussed and carried:

1. Resolved:—That a committee of the Association be appointed to procure the latest information with regard to the best style of packing fruit, and that

they report to the directors of the Association for publication.

2. That the Ontario Government be requested to provide a short course for fruit inspectors at the O. A. C. Guelph, and that they grant certificates to each successful student. Also that schools to instruct apple packers be provided in the counties.

3. That the Government be requested to send a capable man to Europe to study co-operation and market conditions and report to the Government.

4. That the Government have daily market prices of fruit collected from their agents in the Old Country and published in the daily papers in all provinces of the Dominion.

5. That the Dominion Government be requested to have the forms issued to basket manufacturers so as to insure the uniform size of fruit basket.

6. That the Association convey congratulations to Hon. R. L. Borden on his judgement in selecting Hon. Martiu Burrell as Minister of Agriculture; also that congratulations be forwarded to Hon. Martin Burrell, whose appointment was in every way satisfactory to the fruit growers.

Fruit growers are always hopeful but from the opening until the close on Wednesday night a spirit of hopefulness and encouragement prevailed the meetings beyond that which is usually shown. Everybody was convinced that the fruit industry in the province of Quebec was at the dawn of a great awakening, and that the possibilities in this line were very great.

B. R.

The Horticultural Club.



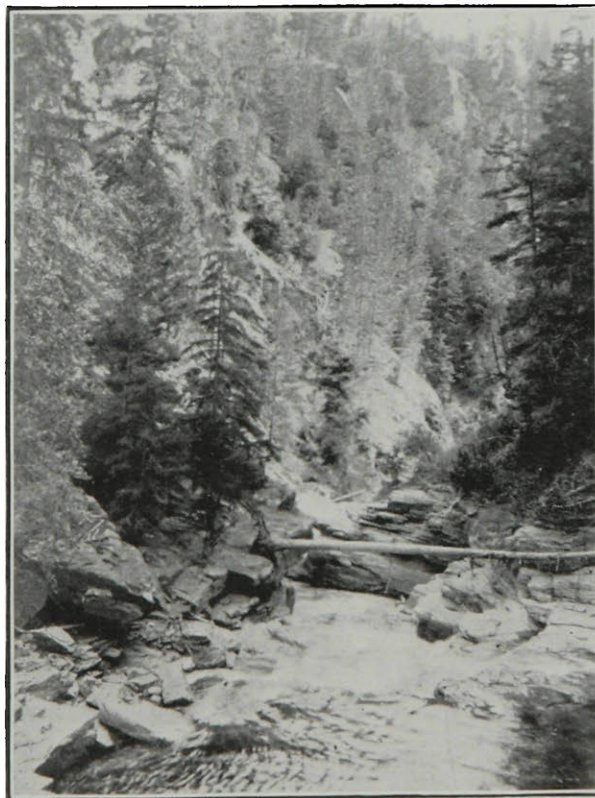
THE Horticultural Club has entered into a very progressive term in its existence. The number of members has been largely increased this year and these are all taking a marked interest in its welfare.

Early in the fall term we were favoured by an instructive address from Prof. Blair in which he outlined a Government policy that would enable the farmers to grow more uniform products and find a better market for these. Great emphasis was laid on the importance of co-operative societies and Government Demonstration Farms.

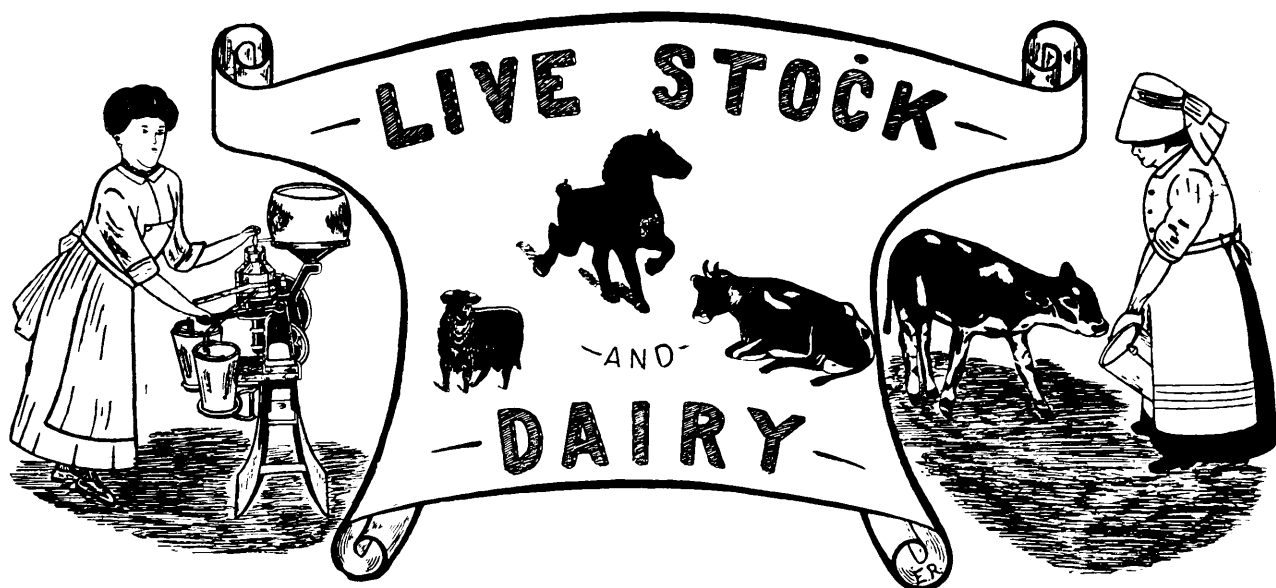
On Dec. 6th our regular meeting was held in conjunction with that of the

Quebec Pomological Society. For this meeting we were fortunate in securing the services of the College Orchestra, which helped to make the evening enjoyable as well as instructive. The series of meetings for this term was opened on Jan. 13th. Mr. Brodie of Montreal addressed the club on "The Fruit Trees which have originated on the Island of Montreal." Several other meetings have been held at which papers on current events were read or a talk given by a member on some topic of interest. The meetings are generally terminated by a social twenty minutes, during which apples are served.

L. V .P.



A BRITISH COLUMBIA SCENE.



Chicago International Live Stock Exposition, 1911.

By H. BARTON, B.S.A., Professor of Animal Husbandry.



FOR some years at the International in Chicago the thousands of visitors in attendance have been content to feel that a grand climax had been reached in fat stock show possibilities. The show in December of 1911 was the twelfth annual show of its kind in Chicago, and while the one of the previous year ranked in the eleventh notch of perfection, it was in turn eclipsed. Eclipsed not so much in entry numbers, but in attendance, general character, and display. The following is the editorial note in the *Breeders Gazette*:—

“General agreement ascribes to the International Live Stock Exposition, now at the height of its glory, a superiority in most sections, which characterizes it as a climax. Exhibits, attendance, interest and the weather all unite to give it Class. The gathering of breeders is unusually large and turnstile count is broken daily.

“The breeding classes are very full and excellent and the fat classes present a

large number of meritorious steers. Out in the pens all precedents pass. The like of the carloads has never been seen. The show more than lives up to its reputation.”

If this show may be taken in some measure as a criterion of the status of the live stock industry, and it seems reasonable and logical that it should, the men whom it includes may feel not only justly proud of their work thus far, but perfectly confident in its promise of the future. The great strings of animals and the magnificence of the whole display at once suggest the proportions of the business. One could hardly view an exhibit of fifty horses, highly fitted and gayly decorated, ranging in value from one to five thousand dollars each, and all owned by one firm, without feeling something of the immensity of the industry. A further examination of the various classes at once reveals the diversity of the business and at this show evidenced clearly the increasing popularity of many of the somewhat newer breeds. Apparently there is room for all of them.

To one who visits the show regularly and is familiar with what to expect, there are always features which characterize each number.

This year's show was not without its individuality. The programme of the first day as usual consisted of the judging competition, which this year included some new entries, making ten teams entered and thus one of the largest competitions yet held. Besides Mac-

they ranked first and third. This pair and others won on their quality and action. In Percheron classes of one hundred or more it would have been difficult to make a choice on conformation, but on quality and action the good ones were easily singled out. It would appear that the Americans with their excessive body development and fitting, especially in the younger classes, are not helping the Percheron horse in either



STUDENTS JUDGING AT CHICAGO.

donald whose presence by this time is fairly well known, Montana for the first time sent a team.

In horses Percherons as usual were the feature, although the number of entries this year, while far in the lead of those from any other breed, was somewhat lower than in last year. The exhibit included the two championship mares of the year from France, and here

quality or action. With this breed and the Belgian, sand paper and whips were too much in evidence.

Belgians were well represented with 212 entries, including one from Crouch & Son in six horse teams. Clydesdales and Shires were both stronger than ever, and in the case of the former particularly, the general feeling among horsemen seemed one of decidedly increasing

favor for the breed. This year's exhibit from one hundred and fifty Clydesdales, including many top-notch horses, should do something still further for Clydes in the States.

At this show a great display of light horses is not usually expected; as in recent years the light horse breeds were not very strong. German Coach, French Coach and Hackney each had a few representatives.

It might be said that horses furnished the most attractive but cattle the most striking feature of the show. The fact that the cattle were located more together and more central undoubtedly had something to do with the effect, but besides location and general quality, the uniformity, not only within breeds but between the different breeds, could hardly escape notice. The tendency for the best in each of the four main beef breeds to conform to a single type speaks well for the intelligence of the breeders and the progress in their operations.

In the fat classes where the breeds come together, the Aberdeen Angus more than sustained its reputation. In car-load lots and individual classes the Angus proved almost invincible. The Shorthorn men might be criticized for their showing in the steer classes, although

what they lacked there they more than made up in the breeding classes.

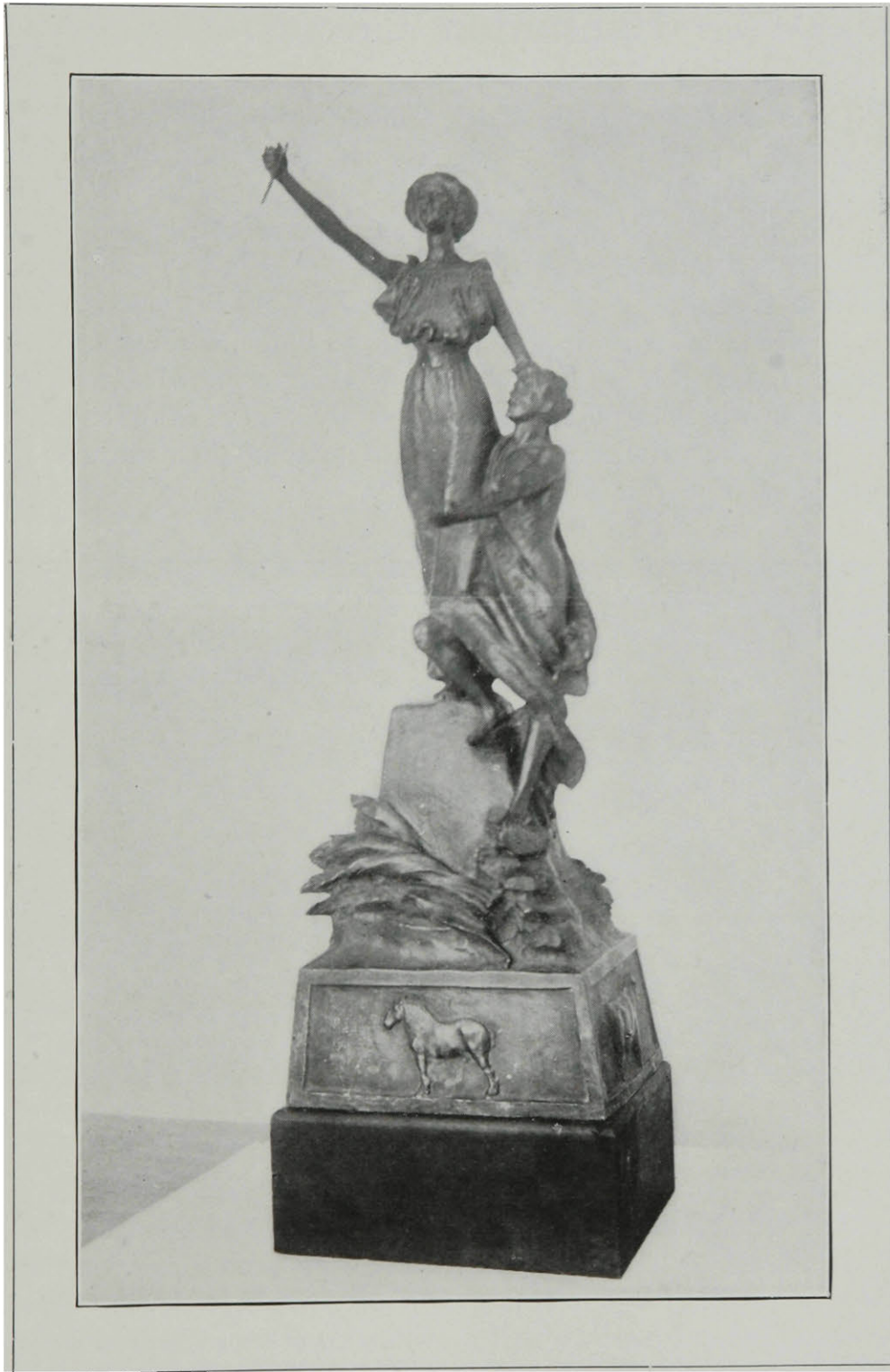
Sheep and Swine were both strongly represented by ten and seven breeds respectively. The American fat hog could be seen at his best and also the Rambouillet sheep, although in the general sheep exhibit Canadian types predominated.

As the name would imply the show is international in character, and each year finds Canadian names prominent in awards. Besides the judging competition, which this year was distinctly one for Canada, the usual quota of laurels came over the line. On a young Shorthorn bull, J. A. Watt, of Salem, Ont., won the Junior Championship and very close reserve for Grand Championship with the old time champion Shorthorn bull, Ring Master.

J. Loyd Jones, of Burford, captured Grand Championship honours on wethers over two years. A. W. Smith, of Maple Lodge, A. & W. Whitelaw, Guelph, and S. Parkinson, also of Guelph, carried off everything in Leicester Sheep. In both Oxfords and Lincolns Canadians again reaped quite a harvest.

Thus we may conclude whether in the Arena at home or the Arena abroad, be it judging or exhibiting, Canadians need fear no competition.

International Stock Judging Trophy.



AMBITION.

By the sculptor Romanelli.

Ambition, stern faced and relentless, urges on a youth who, tottering to his goal, is on the point of giving up, when Ambition, without pity, urges him to make another and final effort.

Benefits that may be Gained by a Student on an Exhibition Circuit.



IN this short article I shall mention only a few of the opportunities which are at the disposal of an animal optionist following the Live Stock Exposition Circuit, by which he may greatly increase his knowledge of live stock affairs in general.

To a young man who may be so fortunate as to have the privilege of exhibiting live stock under a first-class

trimming and the manner of holding an animal before the inexperienced judge. The strength of this point will appeal more to you when you hear many large salaried men in our Live Stock Department of Canada, who are often called upon to judge, expressing their regret at not having a knowledge of the methods used by wary exhibitors in covering the defects of their animals while in the ring.



STUDENTS JUDGING HORSES.

herdsman for some large breeder and importer of this fair Dominion, a grand opportunity is offered to learn the proper methods of fitting and training animals for show-ring purposes, also to learn the tricks of the trade. When a man understands a few of the latter, and I might say experience is the only teacher, his future judging abilities in a show-ring are greatly strengthened, as many defects in an animal can be concealed by an expert herdsman both by

When judging day is over for the particular branch of live stock in which you have been exhibiting, you then have the opportunity of viewing the show-ring while all other classes of stock are being judged. Here you will find excellent animals of all breeds in every class, from which you may pick an "ideal," providing it is one of the large fairs of the country. In many show-rings it is customary for the judge to give his reasons to the bystanders for placing one

animal ahead of another; this method is very desirable and instructive, and one which should be employed at all Live Stock Fairs and thus benefit the intelligent onlookers.

Since there are always a number of decisions given which prove unsatisfactory to some of these experienced exhibitors a very instructive argument is immediately started, which often turns into a mighty debate and thus forms profitable topics of conversation for the exhibitors and helpers during the evening hours.

Most of the travelling in a circuit of this kind is done by freight and when a man has made the return trip in this leisurely manner across the continent

from Montreal to the Rockies, he has had an excellent view of the country and a trip which far surpasses a tourist or colonist train both as regards comfort and sightseeing.

On a trip like this you generally meet with a dozen or more agricultural students from other colleges in Canada and the United States; much can be learned about different methods of procedure in all lines of our respective college work and play.

Needless to say, many other never-to-be-forgotten experiences could be related but which would not be printed in this Magazine, more especially under the live stock column.

A. A. C., Ag. '12.

Ottawa Fat Stock Show.



TTAWA is rapidly becoming a great Live Stock centre. The Ancient Capital annually combines a splendid horse show with the Fat Stock and Dairy Test. This gives the intelligent farmer the opportunity of viewing all breeds of Live Stock. Ottawa rounds up a great series of shows at which a large number of winners try out for final honours. This year's record far exceeds all previous years for both numbers and quality.

The exhibit of draught horses was one of the most pleasing features of the show. Here some of Canada's best horses met for competition. Animals well worthy of mention are Baron Kelvin, Hyacinthus and Sir Spencer, all of these horses being noted winners in Scotland.

Never having previously met, a battle royal between the above horses was anticipated by exhibitors, which resulted in the awards being placed in the order mentioned. The decision of the judges in this case was not a popular one, judging from the ring side criticisms.

The old horse Sir Spencer was looking in great shape, carrying abundance of size and quality, with the best of underpinning, true movement and action equal to most any hackney. Herein, he far excels Baron Kelvin and Hyacinthus. However, it has been exemplified time and again that Canadians do not emphasize quality to the same degree, nor do they place the same stress upon action as does the Scotch Judge.

The next great feature of the Fair was the exhibit of Dairy Cattle. The

two great rival dairy breeds, Holstein and Ayrshire, competed for supreme honors.

'Tis sad! but nevertheless it is true—the Black and Whites completely swamp-ed the Ayrshires. The Holstein cow, Rhoda's Queen, made the phenomenal record of 303 lbs. milk in three days. This is a world's record in any public dairy test.

For production the Black and Whites lead the way; but for symmetry and beauty of form and the making of an attractive showing the Ayrshire cow takes first rank.

Fat Stock were well represented with some choice individuals. While some were choice, there was a marked falling

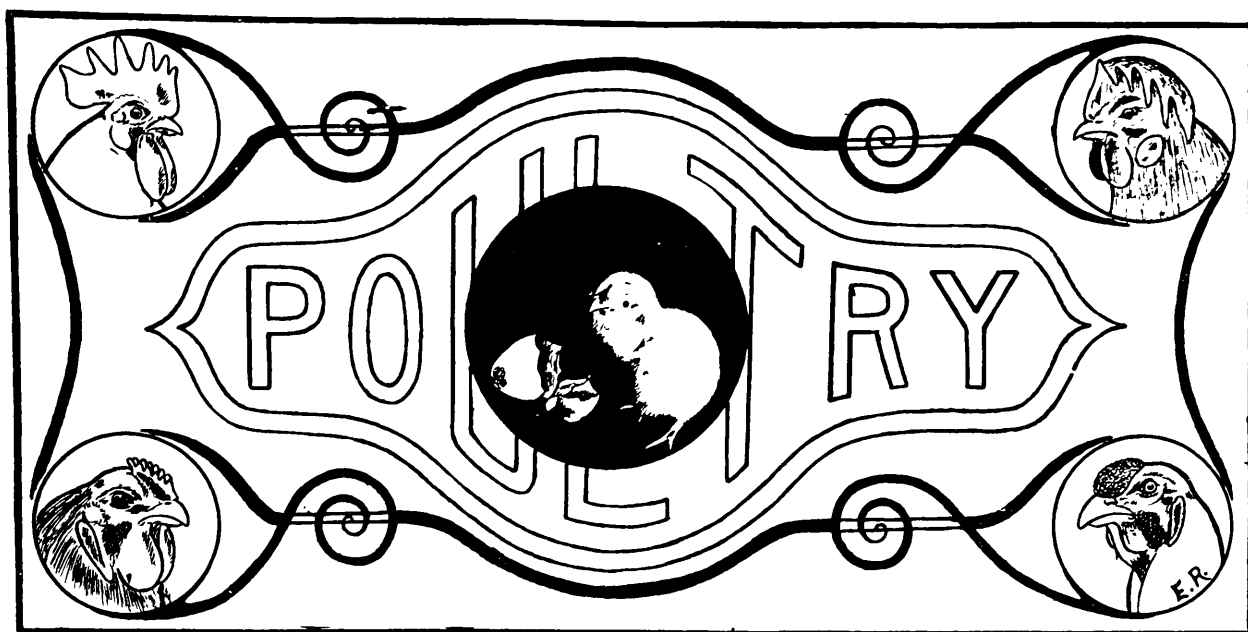
off of prime beef, a large number of the fat cattle being shown in poorly finished condition. This condition tends to reduce the keenness of competition. The other kinds, such as sheep and swine, were well represented with specimens of best quality.

It appeals to the writer that it would be well for Fair Boards to consider the necessity of having the judges in the various sections give their reasons for placing the different animals, and in this way prove more instructive to the on-looker. From this I mean that the farmers would arrive at some definite conclusion as to the most desirable and profitable type.

W. G., '13.



SCENE IN ENGLAND.



Fattening and Marketing Poultry.

By SETH JONES, Poultry Inspector, New Brunswick.

FATTENING CHICKENS.



THE killing and marketing of lean chickens is wasteful and unprofitable, because a much higher price per pound is paid for a well fattened bird with plenty of juicy flesh than for one with but a small amount of dry and stringy flesh. This discrimination in the market is leading to greater interest in the proper feeding and preparation of fowls.

The consumption of poultry meat has of late years increased so fast that the supply sent to Canadian cities is not equal to the demand and instead of exporting, as formerly, we are now actually importing poultry and eggs into Canada. The demand for properly fattened chickens is now so great that dealers in Montreal and Toronto have had to resort to fattening chickens themselves. Several of these dealers are now preparing to fatten thousands of chickens weekly, for they know that the farmer will continue to ship them in such thin condition that they must be further fed to fit them for the demands of the markets. This extra feeding has proved

profitable even when the milk was purchased and brought in by express and high rentals paid for the buildings used. Surely then if the dealers can buy all the raw materials from the farmer and make a profit, the farmer can make a much larger profit by finishing the fattening process himself, for he has all the foods required at first cost and no high rentals to pay.

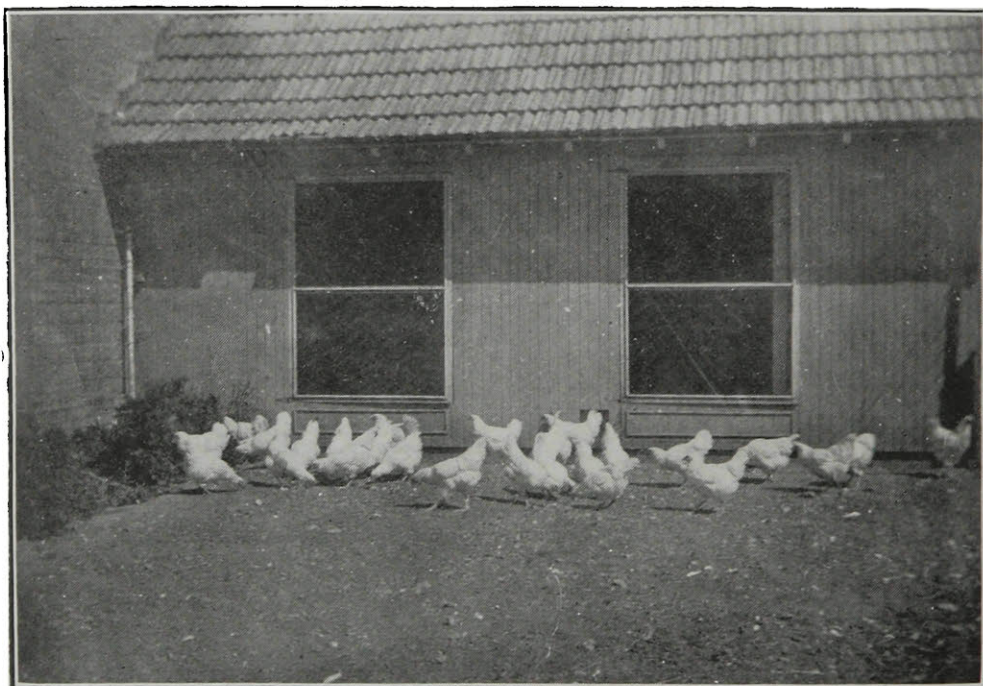
Usually the price for well fleshed or fattened chickens will be from five to seven cents per pound higher than for those just off the range or fields. This means an increase of from twenty to thirty-five cents in value on a five pound chicken, varying according to quality and appearance. Not only does the feeder make a gain on the increased weight but he also gains by increasing the value per pound of the original weight of the chicken. He has the still further advantage of having a quick sale for his well fattened birds, while their stock may not sell at all except at great sacrifice when the supply is large. It is not difficult to produce good chickens. Like other lines of live stock, the scrub sort are not desirable. Good

thrifty cockerels, either pure-bred, crosses or grades of such breeds as Rocks, Orpingtons, Wyandottes, Rhode Island Reds, Game, Dorking, etc., make economical gains. It is usually not very profitable to feed Leghorns, Minorcas, or birds of similar character. These breeds make medium broilers, but rather poor roasters. The birds usually make the greatest gain when about three to four months of age, or at a weight of three and one half to four pounds. Should the market demand a chicken of more than five and one-half pounds

or sulphur when they are put up to fatten. This is a vital point.

PLACE TO FATTEN CHICKENS.

Chickens can be successfully fattened in small pens, colony houses, etc., or in crates. Both these methods give good results. We believe the pen or house method the most humane and cleanly way. But if any one is not fitted with pens, and has a large shed or barn, the crates are the proper thing, as you can handle a large number in a small space; but care must be taken to clean and



WHITE WYANDOTTES.

in weight, then it will be required to allow the birds to range longer, and the gain (in our experience) will be hardly as profitable, unless the price paid is higher, at least one cent per pound.

The average birds make the most economical gains during the first two weeks of feeding. It seldom pays to feed much longer than three weeks or twenty-four days; after this period the added gain is not sufficient.

DUST THE CHICKENS.

A very necessary precaution is to dust every chicken with a good insect powder

spray or paint the crates with a disinfectant lice killer after each lot.

CONSTRUCTION OF FATTENING CRATES.

Fattening crates are usually made 7 feet 6 inches long, 18 to 20 inches high, and 18 inches wide. The crate is divided into three compartments, each holding from four to five birds, according to the size of the chicken. The crate is made of slats, except the ends and partitions between the compartments, which are solid wood—those on the top, bottom and back running lengthwise of

the coop, while those on the front run up and down.

The slats are usually $1\frac{1}{2}$ inches wide and 5-8 inch thick. Those in front are placed two inches apart to allow the chickens to put their heads through for feeding. The slats on the bottom are placed about $\frac{3}{4}$ inch apart, so as to admit of the droppings passing through to the ground. Care should be taken not to have the first bottom slat at the back fit too closely against the back. An opening between the first slat and the back prevents the droppings from col-

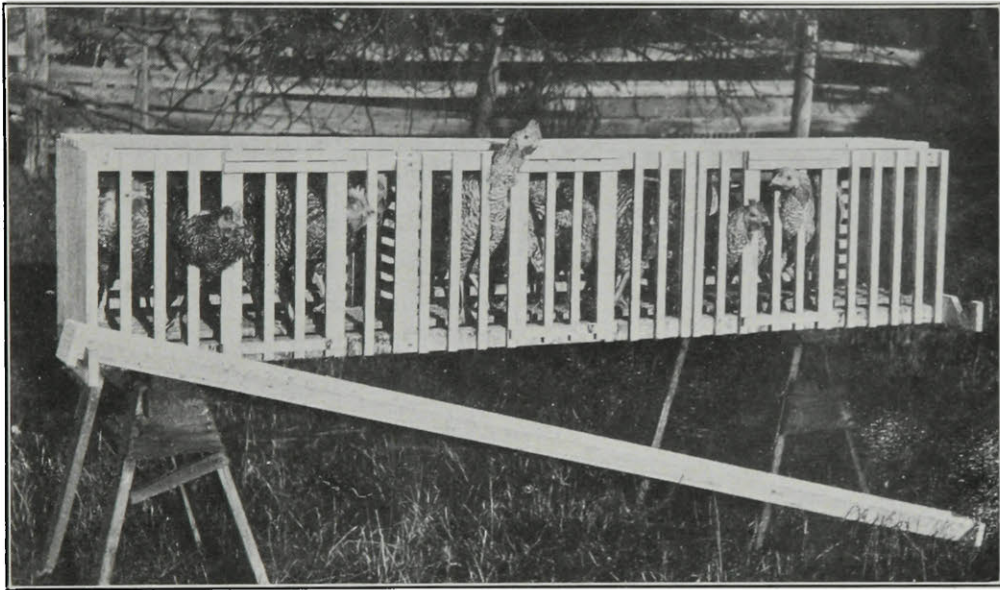
sour skim milk or buttermilk. The following mixtures are tried and proved:—

1. Equal parts ground oats, ground buckwheat (hulls removed) and cornmeal.
2. Equal parts ground oats, ground barley and buckwheat meal.
3. Equal parts ground oats, middlings and cornmeal.

Use about two pounds milk to one of above mixtures to make a soft batter 12 hours before feeding. This is important.

HOW TO FEED.

We receive a number of enquiries as to how we feed the birds that are being



FATTENING CRATE.

lecting and decomposing. The slats on the top and back are usually two inches apart.

There is a small V-shaped trough arranged in front of the coop for feeding and watering the chickens. This trough is from two to three inches deep and is generally made of $\frac{3}{4}$ inch lumber.

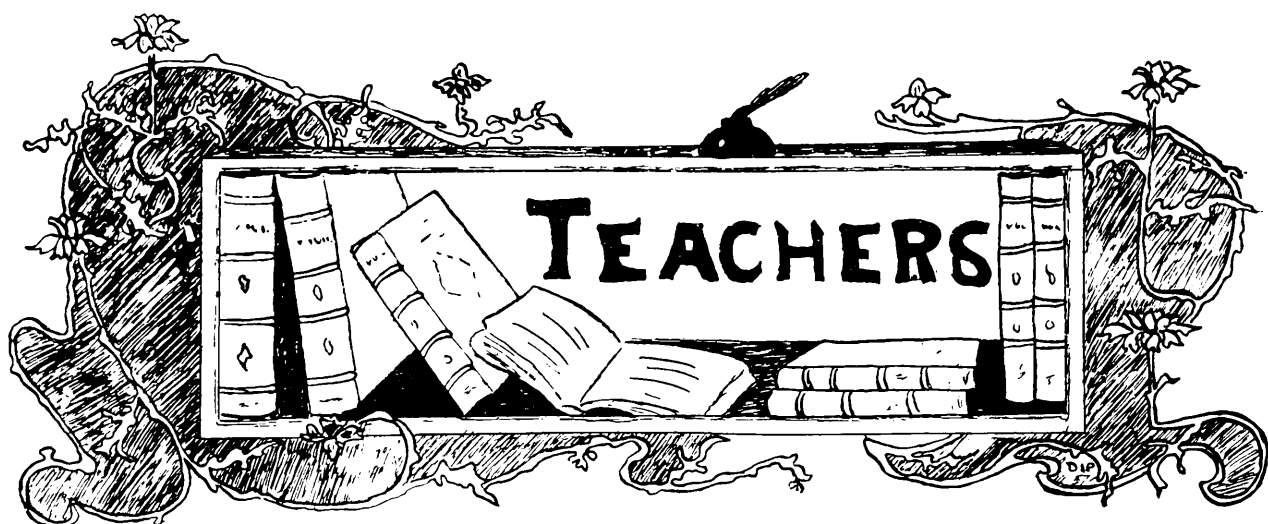
Very fair coops may be made from old packing boxes, by taking off the front and bottom, and substituting slats in their places.

WHAT TO FEED.

What to feed is most important to get best results. In all mixtures, use

fattened. Most enquirers wish to know the exact amounts fed each day.

It will be noticed that we fed very lightly at the beginning—a very important point—and that the amount was gradually increased until such times as the birds refused to eat all that was given them. No feed was left in front of them longer than ten minutes after it was placed in the trough. Any food left after such time was removed. The first week feed only twice a day, second week three feeds of ten minutes each meal may be given. Fresh water, some green raw food and grit must be given each day.



Hand Work in Rural Schools.

By Miss L. WETMORE, Assistant in Manual Training.



IF we are interested in houses or in furnishings—and who is not—we cannot escape the word “craftsman” applied to tables and chairs, to lamps and candlesticks, to homes themselves, and to articles innumerable for use or ornament; while magazines and papers devote pages to popular instruction in Handicrafts, and many societies and guilds devote their energies to promotion and encouragement of the Arts and Crafts.

Though the name “craftsman” may be often misapplied and misleading, this fashion or outward sign is one expression of a strong underlying movement toward better taste in furniture and furnishings—simplicity combined with real worth in material and construction, and beauty in line and proportion. There is also a growing appreciation of true and beautiful work which was the ideal of the old craftsman days.

This is, we may hope, the small beginning of the day looked for by such leaders as Ruskin and Wm. Morris who preached a gospel of that sort of work which brings

soul-content, interest, beauty, and taste to all creative works of the hand and prophesied the time “when workers will make nothing of which they are not proud, and buyers seek nothing but what they can find delight in using.”

In many places, declining industries, in which the talent and skill of a people were expressed in beautiful work, have been revived under the encouragement and fostering care of individuals or societies. The Canadian Handicrafts Guild of Montreal is doing a great deal in this way for various peoples of Canada.

The foundation of the work of the early Persian craftsman was honesty, sincerity, respect: the result permanence, beauty, satisfaction. There we have the beginning and the end of all work, for all times, for all people.

But in this present age of machine-made articles, great manufactories and specializing, the worker is removed as far as possible from the day when designer and craftsman were one, and it is becoming less and less possible for the man to take pride in his work.

This Arts and Crafts movement may seem far removed from our title, but though school hand-work has a different aim and purpose, it is quite closely related to the former, and both are somewhat affected by the same conditions.

The giving up of many household industries, such as preparing of flax or wool, the spinning and the weaving; the gathering of the products of the field or forest and preparation of dyestuffs, etc., has resulted in great lack of knowledge of materials, and deficiency in manipulative skill and the definite training in motor activity. This must be corrected, not for the sake of the crafts, but for the development and good of the people.

The realization of this has come to leaders of thought in different countries, and after almost endless testing, and rejecting and choosing of methods and media, the present aim and purpose of Handwork in the Schools may be summarized in the following words:—

1. To make results of all teaching more permanent and valuable by the introduction of motor activity.

2. To develop industrial intelligence, *i.e.*, habits of efficient, well-planned, thoughtful, economical doing.

3. To develop appreciation of beauty and excellence in constructed objects, and establish true standards of judgement.

An idea once prevalent that such training necessitated expensive equipment which made it impracticable for rural schools, has been dissipated; and it has been demonstrated again and again that an enthusiastic teacher, having the fundamental principles and aim of the work well in mind, may obtain the best results with but little expenditure for material or equipment.

The most suitable materials for use in Elementary Schools are paper, card-

board, clay, raffia, reed (or other basket material), wood, and in some cases leather, weaving materials and sheet metals, selecting the special ones suited to age and ability of the pupil, and to the environment.

Joseph Henry Judd, in discussing the relative values of various media, expresses himself as follows:—"I know of no school-craft that educates more thoroughly, more conclusively, more simply than paper-folding in the junior, and card-board construction in the senior department of the elementary school; or which offers such advantages at a minimum of cost. Each fold, each crease, each cut wrongly made is proof positive of error in measurement, judgement or manipulative skill. Patience, perseverance, thoughtfulness are almost automatically impelled during the period of pause which follows discovery of error, and the child apprehends the cause without the aid of the teacher almost as readily as if given full assistance."

It is evident that this applies to wood-work, metal-work and garment-cutting in the higher classes; but not with the same force to clay-modelling, raffia or basketry, or rug-making, though each of these is valuable in its own way.

Many of the materials can be had by the pupils for the collecting. Paper, for cutting, folding and construction, card-board (from boxes) for construction, foundation of blotters, book covers, scrap baskets, etc.; varieties of grasses and rushes, wheat or rye straw and corn husks for basketry or plaiting, clay, which may be prepared in any locality and made ready for modelling, will furnish abundant material for many valuable lessons; and the gathering and preparing of materials, if done in a systematic way, will give an additional interest to the work.

In some localities packing boxes of various sizes could be obtained, and with simple tools (saw, hammer, plane, chisel) very useful constructive work may be accomplished, as flower-boxes, trellises, shelves, racks for tools, etc.

Miss Laura Brigham has made most interesting experiments with work of this kind in a crowded section of New York City, giving boys and girls a chance under careful supervision, of making something really useful for themselves or in their homes. So successful was the first experiment, that the work has grown far beyond the first establishment, and branches have been started in several other sections of the city. Miss Brigham has gone so far as to furnish an entire small flat tastefully with material from boxes, as a demonstration of its possibilities.

The use of inexpensive or common material does not imply lack of care as to planning, proportion and finish of the work.

Especially with the older pupils, the manner of working is of great importance. First, there must be a clear idea of the problem in hand, expressed by sketch or working drawing; second, a knowledge of how it should be done,

kind of material and sizes needed ; and third, a workman-like method of doing it. So the habit of seeing before and beyond the task immediately in hand is cultivated.

The third aim or purpose, the development of appreciation of beauty in constructive objects, is a source of great pleasure, limited only by the degree of development. This is accomplished partly by much choosing, partly by shaping of forms and mixing of colors. Rarely is a high capacity for enjoyment of beauty of form and proportion developed without having tried to produce them.

The fellowship of effort resulting from one's attempt to make beautiful things is a potent factor in bringing one's delight as a beholder near to that of the producer.

Therefore, however simple the work of the children in the school, let it be the most beautiful of its kind.

A teacher who is imbued with the spirit of the work, keeping the ideal in mind, will find in the school and home activities, in the local industries and environment abundant opportunity and material for securing most valuable results.

Modern Teachers—Macdonald Girls.



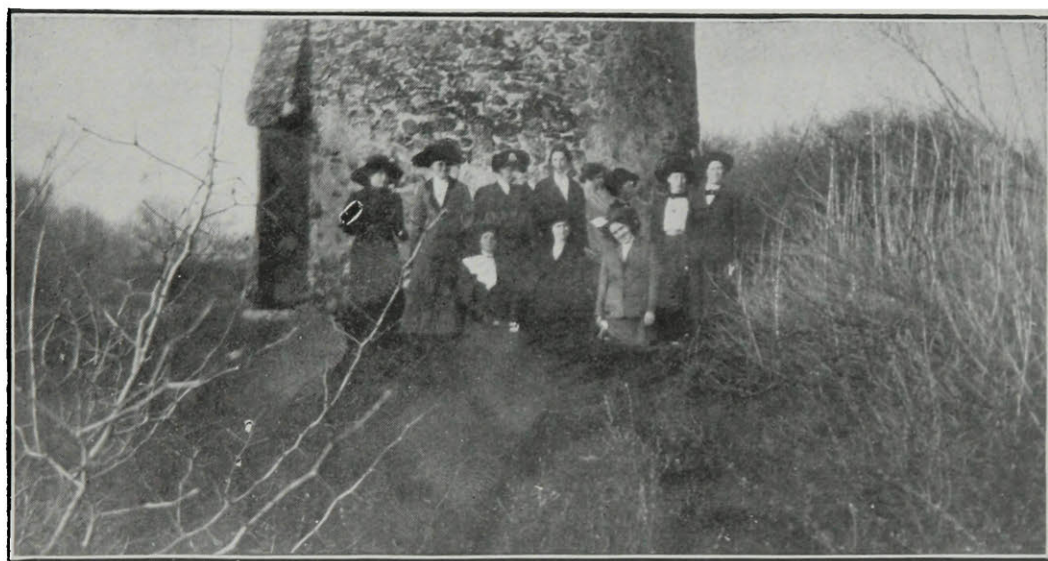
PERHAPS there lurks in the minds of some deluded mortals the idea that the life of the teachers is humdrum and monotonous. In case this may be true, it is our intention this month to give a brief sketch of the life of the teachers now at Macdonald College.

We students came to Ste. Anne's in the beginning of September, and it was not long before we fell in love with the place and made the long halls ring with merry laughter and gay chatter. The college grounds looked beautiful indeed with their velvet lawns, shady trees and bright flower-beds, and beyond the main road the river danced and sparkled

beneath September suns. Everything was new and full of interest, and our college home was truly sunshine within and sunshine without. After lectures were through in the afternoons, walks or strolls were the order of the day, and the evenings previous to the study hour were passed in the gymnasium with music and dancing.

A few days after our coming, the Science girls arrived and the old saying proved true, "The more the merrier." From the very beginning, we felt that there would be a spirit of good-fellowship throughout the year between the two

interests was widened to embrace baseball and basket-ball. Class literary societies also were formed and opportunities thereby given for students to rise and make their maiden speeches with faltering tongue and fast-beating heart. The members of the smaller societies all belong to the Macdonald College Literary and Debating Society, which furnishes enjoyable and profitable literary evenings in our Assembly Hall. Indeed, we have seen flourishing in our midst, future politicians and statesmen, and truly the director of our college orchestra is the talented and gracious supervisor



THE OLD FORT.

schools. At the end of the month the Aggies returned, and a few days later gave us a most enjoyable reception in their residence. Following this, our Model teachers were "at home" to all the students and faculty. Our gymnasium was gaily decorated and the banners were arranged about the lights so as to cast a romantic light over—over the floor, and we feel that our little entertainment accomplished its purpose in promoting enthusiasm and *esprit de corps* on all sides.

In October, the Girls' Athletic Association was reorganized, and our circle of

of a band of able student musicians. Prominent, too, have been our soloists who have delighted the hearts of their audiences with their well-rendered songs. We teachers do not claim all of these artists, but a goodly number belong to our school.

On the 17th of November, the first formal dance of the year was held in the Women's Residence, and it passed off with the hearty congratulations of all who made up that brilliant company, for one and all enjoyed the evening to the full.

With December came those Yuletide

examinations which we relished so much; we hope with great earnestness and ardent sincerity that our gallant professors experienced as much real joy and pleasure in correcting our papers as we did in handing them in. When the holidays came at last, the college sorely missed the greater number of its students, and yet we have reason to believe that those who remained had such a delightful time that they regretted the return of the absent heroes at the opening of the New Year session. We are beginning to think that it must be Leap Year, because we have been constantly reminded of this fact—just why we do not know.

Although we had but little winter weather before Christmas, it is here now, and with it the skating. We, teachers, intend to have many good times on the rink this year for we must keep out in the fresh air as much as possible. Outdoor fun brings the roses to our cheeks, enables us to study harder (if such a thing is possible), puts us in a good humor with world in general and nobody in particular, and fills us all with life, energy and mirth.

Our course, however, is not all fun, nor would we have it so. Hard work makes us enjoy more keenly the recreations of college life. We do not fail to realize that we are going out into the world to guide the destinies of the rising generation; we intend to shoulder our responsibilities and make a success of life; and although we do not intend to teach forever, at least we shall give

our best while we do teach, and shall endeavour to bring happiness and sunshine into the lives of others.

And now we would recommend our course to all who wish to spend a profitable and enjoyable year intellectually and socially. People are at last waking up to realize that there should be no such term used as "the school-marm," and that there is a great place and need for the modern teachers of Macdonald College—teachers full of life and vigour, ready for fun and frolic, but ready at the same time to face life with a determination to conquer the problems and difficulties that will surely arise from time to time.

We are looking forward to the Masquerade in February and to the many other social functions which will crowd in upon each other up to the final examination session. How much we shall miss this college we shall not fully realize until we find ourselves far away from the old associations, longing to see once more the place where we spent one of the happiest years of our lives, and remembering, with a smile upon our lips, the merry days when we shouted at the top of our lungs:—

We're from, we're from,
We're from Macdonald College,
Our minds are stored with every kind
of knowledge.
A-rick-a-tick, A-rick-a-tick, sis boom
ba !
Macdonald Teachers! Ra! Ra!! Ra!!!

E. F. R. TEACHERS, '12.

Carlyle's "Heroes and Hero-Worship."

By R. W. EDMISON, B.A., Headmaster Practice School.

The Hero as a Poet.



TO Carlyle, the Hero is not the man of great deeds alone, nor he who is capable of a great self-sacrifice for some narrow ideal; he is not the man who fights his way to glory under the intoxication of a momentary passion. He is the man who sees the heart of things, their vital principle, their essence, the great Why of their being, and with that revelation before him, for the love of truth, works it out in the world. Not as Browning's Lazarus is he the hero, seeing the Infinite, but remaining silent because of the world's unwillingness to believe, even though one rise from the dead. Carlyle's Hero is the man with a vision whose very awfulness forces him to reveal it—to cry it aloud even in the face of martyrdom.

So sincerity is the stamp of the Hero. He is but the tool of the Infinite. Unconscious of self, he proclaims the divine message, just as it is given him. There is to him no escape from it; the Voice throbs in his ears as his own heart-beats. And the poet lays his laurel at the feet of the muse and the prophet proclaims, "*Ich kann nicht anders.*" The vision is so vivid, so inspiring, that the hero's life becomes a reflection of the Infinite. Other men catch but glimpses, veiled and dimmed, blotted and blurred by the fog of life's commonplaces; but the vision of the hero is clear—all comman-

ing, given him to tell to others, that men may be lifted toward God.

History, to Carlyle, is not the story of the growth, struggles and victories of a people; it is the sequence of the lives and accomplishments of heroes,—men who carve with the sword, or sway with the sceptre or wield by the force of the pen. The humble ones who follow leadership almost blindly, are they not to be taken into account? Surely if Pitt had remained silent, the voice of the multitude would have been heard through other lips. And would those long centuries have remained voiceless if Dante had not sung? Or is one right to believe that a people who could produce a Dante *must* have given birth to another if not to him? For the burst of the joy of triumph in the sudden realization of national independence, the greed of knowledge, the boundless opportunities of a New World, must have so affected men's souls that their lips could not have been dumb. Though it could not have had a nobler singer, yet the time gave the song, and the song *was to be* sung.

On the other hand, so does he worship his heroes, that Carlyle believes the Great Man is bound to be great in some sphere,—as a Poet, a Priest, or a King—whichever, depending on his environment, he chances to be. Then again he says of Dante, "Had all gone well with him as he wished, he might have been made Prior . . . and the world had wanted one of the most

notable words ever spoken or sung." What might have been and what may be are hidden, but with Carlyle, we feel that just as inevitably as the great time must be represented, the great man *must* stand forth, if not as Poet, then it may be, as Prior. The light of the Divine Fire must be seen; and whether as King "swaying the rod of Empire," or as Poet, singing the living songs of men's hearts, God will show himself in those to whom he gives the spark of that divine light.

It is a beautiful thought, this of the heart of things being Song. Those ancient Greeks, in days when men had time to ponder on the heart of things, seeing the seasons come and go, the moon wax and wane, the planets move without let or hinderance or jarring note, felt that there must be some deep, all-comprehensive plan in which each of these had its appointed place, each differing from the rest and like notes in exquisite harmony, blending with and drawing out the beauty of the others. And so it is, in Art, in Music and in all Being, or Expression of Being; there can be neither Truth nor Beauty nor any Utility without obedience to Law. In form and growth of tree and herb, in winding of stream or sweeping curve of cloud or hill-top, in prattling of brook or roaring of ocean, there is that to which the soul responds, for it feels it to be the Rhythm of the Universe. Poetry too must be in obedience to the Law of Rhythm which lies at the heart of all things, and the true Poet feeling the Law, cannot sing out of harmony, as a man with an appreciative ear cannot hum a tune of his own while sweet music is playing.

One understands then the reason for Carlyle's bitter irony directed against the rhymers. Not hearing the inner

harmony, he takes his song from himself, and that within us which answers to the Rhythm of the Universe listens with offended ear. Wordsworth, heeding nature, sings of her with the grandeur of the mountains which he loves; rhyming when no force drives him to expression, he gives us mere drivel. Byron sings with the voice of the true poet in his diviner moments, but his expression of the tawdry amours of immoral men and women is on the same level as the thought.

Shakespeare and Dante are such heroes that we like to think of them as Universal. Carlyle says, however, that we cannot hope that they shall live forever, unforgotten. Why not? Granted that they are not full of the inner harmony, yet surely there is in them the spark of the Divine which shall never be extinguished. The human heart is the same for all time; Babylon or London, Nineveh or New York, "though they come from the ends of the earth," the same passions sway men; the word true there and then, is true here and now, and shall be always. Life will never become so tranquil but hearts will answer to the sigh for rest in "After life's fitful fever he sleeps well," or the hope of renewed strength in "Sleep that knits up the ravelled sleeve of care." Men who speak from the elemental passions—the depths of love and joy, or hate and sorrow, or weariness and longing—will always be heard by mankind, as surely as will that Voice Who cries "Come unto Me and I will give you rest." And the weary of many years have come, and such will always come, in answer to the call.

Let us look at Carlyle's description of Giotto's portrait of Dante. All he tells us is in the face, but without him we could not see it—the pathos, the

loneliness, the pain and the victory; the tenderness and affection converted into indignation and scorn; the pride and dauntless resolution; and the surprise at the stupidity of the world! The vividness and beauty of his picture of this face interpret it so that we can never forget it. And Francesca and her Lover—"a thing woven as out of rainbows on a ground of eternal black." This is the kind of thing that seizes us so that we must at once know the description which so inspires Carlyle.

How completely he shows us Dante! What a sympathy he brings to his study of Dante! "I fancy he was not easy to make happy," says the man of whom this very thing could be said. And so, praise Shakespeare as he will, we cannot but feel that his heart has more of kinship with Dante, and hence his picture of the latter stands out more vividly than that of the former. But see how strongly he fills in the outlines of his sketches of both! Dante, he tells us, was deep and intense as the central fire of the world; Shakespeare was placid and far-seeing as the sun. Dante cut deep as with a sword of fire; Shakespeare with his "calm creative perspicacity," miraculously transformed his material.

It is the veneration of the great for the greater, as when Wordsworth wrote

of Milton—and greater words he never wrote,—

"Thy soul was like a star, and dwelt apart,

Thou had'st a voice whose sound was like the sea,

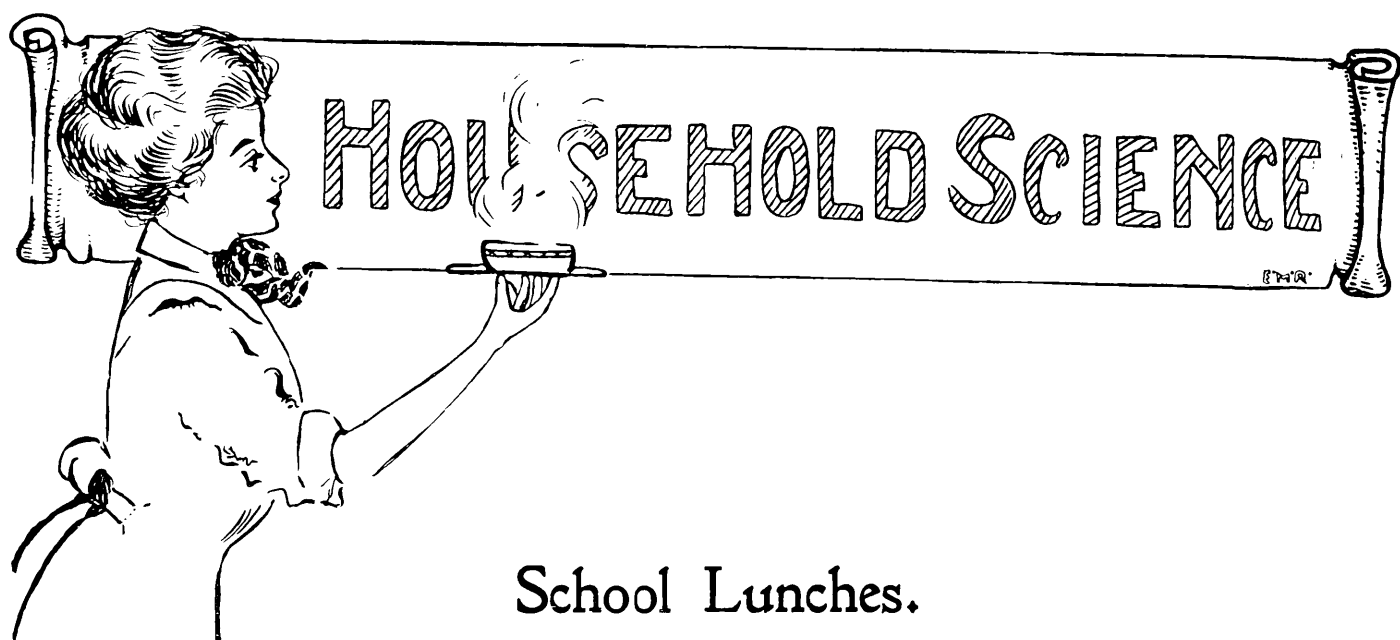
Pure as the naked heavens—majestic, free!"

The admiration is of one stretching out his arms to the blue, and filled with the vastness of it; like Shakespeare looking with his great calm soul upon eternity,—

"We are such stuff as dreams are made of,

And all our little life is rounded with a sleep."

The greatness of these Hero-Poets—their intensity and breadth, their insight and their clearness of expression—is indeed shared to a very high degree by Carlyle himself. His thought comes to us with a wonderful power; his inversion, his repetition, his periods, his coined words, his strangenesses of syntax, he uses as servants, forcing them to do his will and to convey his message to men—a message which with those of Dante and Shakespeare we may well believe to be Universal.



School Lunches.

By MISS K. A. FISHER, Head of School of Household Science, Macdonald College

IN the preparation of the school lunch the use of paper napkins, paraffin paper and a suitable box makes all the difference possible. The box should be light, with a handle for easy carrying. Japaned tin ones of an attractive colour may be purchased for twenty-five cents at any good hardware store. Plain white paper napkins (do not use coloured ones) may be bought for thirty-five cents a hundred, and paraffin paper for about five cents for two dozen sheets. With the paraffin paper lining the box, or wrapping any food which would otherwise dry out; one, or still better, two paper napkins; and the food carefully prepared; the whole question of lunch takes a different form. The extra time spent in this way is amply repaid by the pride and satisfaction of the child.

As the mother arranges the home meals she can easily plan to have food set aside in suitable form for the lunch. Small moulds are particularly attractive and convenient. For these the small yellow crockery cups, costing sixty cents

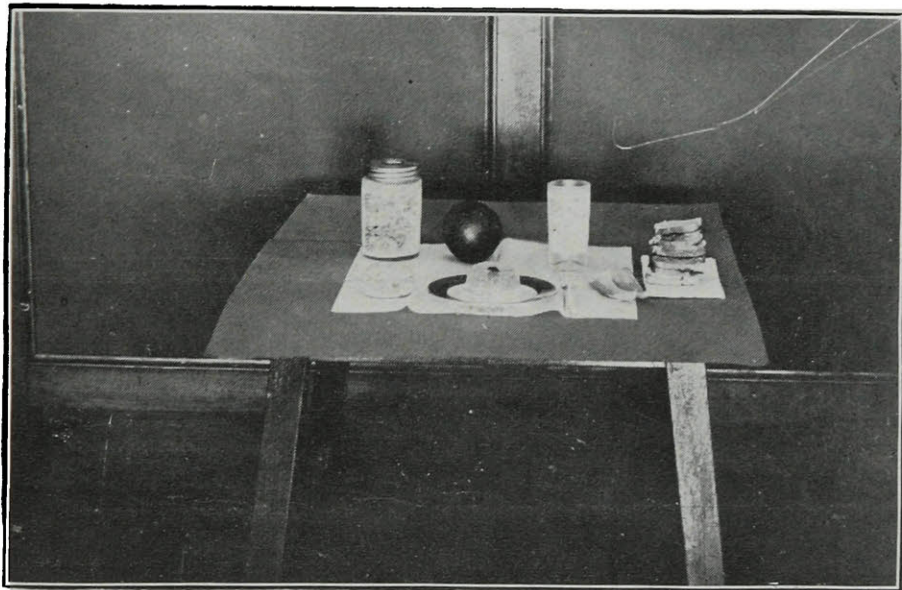
a dozen, are most useful, owing to their size, shape and durability. In these a small custard may be baked or a rice pudding taken from the large pudding before it is cooked. Some of the potted or jellied meat being prepared can also be moulded in these and thus easily and attractively packed. The small gingerbread with a few raisins; or a sponge cake baked in a patty pan, is dear to the heart of a child and it is so easy to use a little batter from the large loaf for this purpose. Buttered rolls and muffins, with, sometimes one or two light tea biscuits split and spread with butter and jam or jelly, then pressed together, are all most acceptable. A firmly cooked egg, with the yolk removed, seasoned lightly with a mild salad dressing and returned to its place, then the egg wrapped in paraffin paper, proves tempting.

Fruit should not be forgotten. An apple, an orange or a few dates and figs should be included among the other foods. Tender celery, when in season, and lettuce in sandwiches will prove popular. Sandwiches should be wrapped

in paraffin paper and, with wholesome nutritious filling, will greatly increase the value of a lunch. These fillings need not always be meat. Dates or figs chopped and mixed with a little cream, cottage cheese, and seasoned yolk of egg all make most inviting sandwiches. However, do not think that sandwiches should always be included. The child may tire of them.

It must always be kept in mind, as shown in another article on "The Feeding of Children," that there should always be included food of decided tissue building value as meat, eggs, custards

lunch. As yet, few Canadian schools have facilities for making these. In many of the American schools regular lunch rooms have been established where the children may get, at cost, their entire lunch or supplement that brought from home. It is found necessary, indeed, in some of the large cities to provide food in this way for the children coming from very poor homes, and in each case the results have been most encouraging. Before long our Canadian cities will have to solve the same problem. Here at



LUNCH SET OUT IN AN ATTRACTIVE WAY.

and milk, as well as heat and energy producing foods. Very often, in children's diet the tendency is to give too much fat in the form of some complex dishes as cookies, pastry and rich cake. It is wiser, therefore, to serve the heat and energy producing foods, chiefly in the form of starch and sugar. A small jar of milk is a wise choice for the lunch box, and it would be well to include it at all times, unless it can be arranged to have the milk supplied at the school.

A hot liquid, such as soup or cocoa, is an important addition to the cold

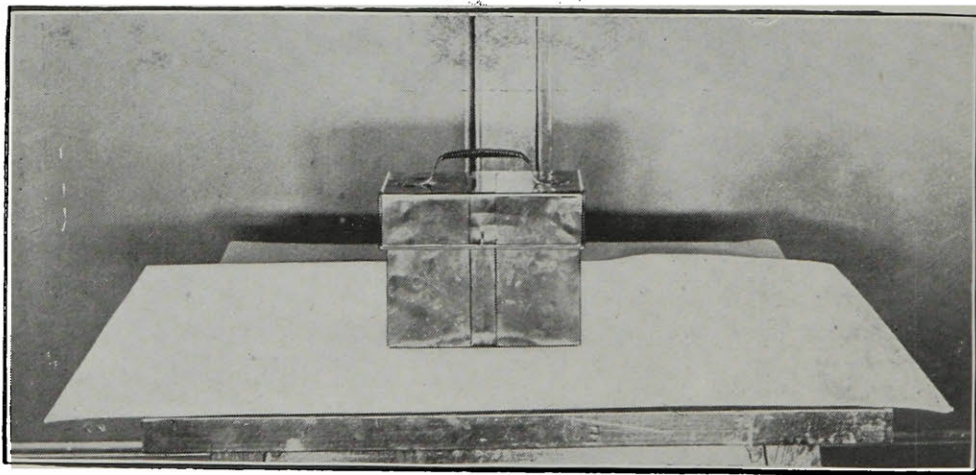
Macdonald College we are endeavoring to interest the students who are going to teach in the schools of Quebec in this question. We have been considering with them the making, especially, of cocoa on cold days for the children of their school, and also considering the simple equipment necessary for this. Temporary tables or table tops could even be placed over the desks and the children instructed in setting out their lunch in a neat form. Sociability would thus be encouraged and conditions governing the lunch hour made very much better. The washing

of the dishes carefully would even prove a lesson for the children. If dishes were not provided by the school authorities they could be brought from home and kept in a cupboard provided for them. It must not be forgotten, in packing the lunch box, that a few dishes are necessary for the proper serving of the lunch. A small spoon or fork, a favorite plate, and a glass for milk, take up little space and might be kept at school if the cupboard mentioned above were provided.

Would it not be wise, therefore, for mothers to interest themselves in this question, co-operate with the teacher in providing an attractive lunch hour and in every way to promote the health and happiness of the children

by carefully studying their food, which, in such a large measure, determines their physical and mental vigor. I might again state that this should form part of the study for the Women's Institutes now starting throughout the province. While the farmer carefully considers the subject of balanced rations for his stock, is it not vastly more important that the mothers study the food question for the benefit of their families?

The School of Household Science at Macdonald College will be glad to be of assistance at any time to the women of any community or the members of Women's Institutes, who are anxious for information on these or other questions connected with the home.



A CONVENIENT LUNCH BOX.

Gretchen's Curriculum.



TO a country that is now the possessor of colleges where domestic science is taught it might be a matter of interest to know how the older country of Germany prepares her daughters for their future home duties. Very like the school girl of Canada, Gretchen passes through the ordinary routine of school life rising in the early hours of the morning to enable her to reach her desk by eight, struggling with the "Aufsatz" or weekly composition which will form such an important item in the monthly report, and again influence her advance into a higher form.

The last school year passed with its attendant worries, Gretchen passes that mysterious barrier thrown open by her confirmation. To a German girl this means the lengthening of dresses, the braiding up of those long tresses which until now have hung in two long braids—Gretchen's chief ornament. Budding womanhood now resents the familiar address of "du" and demands the respectful "Sie" in recognition of the stride forward in life's march. The child-like curtsy which has so far been the mode of greeting, nay, even the kissing of the extended hand, these are left behind with the dolls and fairy tales of early childhood, their place usurped by the formal bow and murmured words of greeting in imitation of the old campaigners already launched on life's journey.

Thrift is the keynote of the German home, and while Gretchen has been storing her mind, the mother has planned and spared to stock with fine linen the trunk destined since the daughter's birth to line the future nest.

The time has now come for the pen to give way to the spoon, and Gretchen bids a tearful farewell to the assembled relatives and friends, and departs with a wonderful outfit of new dresses and hats under which to hide the palpitating fear of new surroundings. Her destination is a "Housekeeping Pensionat" or institute; a fairly big house capable of receiving about thirty scholars. The instruction received covers a wide field. With three, four, or five comrades she is sent to the important field of action, the kitchen, where for a week she is instructed in the fabrication of those meals with which she hopes to lubricate the wheels of matrimony. What patience is needed by the "Head" herself, so strong, broad-shouldered and capable to rectify the mishaps to over-flavored sauce, and pastry that even Hans or Max would struggle nobly to assimilate. Fingers scarred by burn or cut are only signs of warfare to be bravely borne before the epaulettes are won. With a heartfelt "Gott sei Dank" the kitchen work is at last over—the print gown exchanged for the every-day working dress, and a week of house and table-maid's duties begin. It is a much less precarious occupation to dust, polish, and arrange the table for meals, even tho' that be five times a day; for in some parts the meals consist of a first or early breakfast at 7:30 a. m., a second breakfast at 10:30, a dinner at 1 p. m., coffee (similar to our afternoon tea) at 4:30, and supper at seven. Interspersed with these duties is instruction in dress-making, millinery, fine embroidery, and lace-making. The third week finds Gretchen comparatively free. Perhaps it falls to her share to be initiated into

the management of the household laundry work, a most important avocation, only to be placed on a level with the equally laborious one of jam and preserve making; and the pickling of meat, fruit, and vegetables. The fourth week finds her in the kitchen again.

The pupils at a pensionnat of this description attend the concerts, operas, theatres, lectures, and picture galleries within easy reach; and should any one

show particular talent in music or art, special arrangements can always be made for the pursuit of that study. Thus a greater individuality is possible than in a larger institute.

In this way under careful supervision Gretchen prepares herself to become the thrifty "Hausfrau" that every Hans expects to find in the Gretchen of his choice.

"FRAULEIN."

Work in the Apartment and its Value to the Student in Household Science.



FIRST girl (Going Village-wards): "Why this distracted air and mad rush?"

Second girl (Returning from Village): "Apartment!"

First girl: "Oh yes, you poor wretch!"

How often we have heard this short dialogue or one of the same import. Sounds amusing or doleful, as the case may be, but at the same time it is a somewhat misleading little dialogue, and for those who have been led astray by it, this article is written.

The girl who takes the Apartment duty for a week seems to be an object of pity to her girl friends, and one of amusement and mild sarcasm to the men students, who seem to think that the Apartment duty is merely a practical test in cooking, and at once conjure up a vision of burned fingers, ruined food, and a distracted "Science."

"Up in the Apartment" means that the Science student is undergoing a test in Household Administration. She has listened to many lectures on the sub-

ject and now she must put her knowledge to a practical test. This part of the course is of the utmost importance to the Homemaker. Woman's place in the home is that of manager, and upon her competency depends the comfort of the home. It is the duty of the manager to attend to the family:—(1) To see that they are living in a healthy and sanitary condition; (2) to know the cost of food, where and how to choose, the care, preparation, nutritive and dietetic value thereof, and how to serve in order to make it attractive; (3) to understand the management and what is required of servants; (4) to dispense hospitality.

Her course in Bacteriology enables the science student to perform the first more thoroughly, because more intelligently than the woman who has not had the benefit of such training. She has been well drilled in regard to the second, and there is but poor excuse for her who serves unbalanced meals or overruns her bank account. As to the third, she has no servants to oversee, but she is learning

how much time and strength each task takes. Hereafter and forever she ought to be a reasonable mistress, knowing exactly what she should require of servants. The last duty is by no means the least. True, she does not do the entertaining of the guests, but upon her management their comfort largely depends. She soon learns that this does not consist in changing one's mode of living, but in having such a splendid working system that there is no need of change in order to make guests comfortable.

System! This is the keynote of Household Administration. Without the ability to systematize, the knowledge gained in lectures will count as naught. After a week in the Apartment, the wise student will quickly realize this and at once decide to plan a system that will carry out the work and leave time for rest and recreation.

Perhaps the student has not been altogether filled with an admiration for the words—Homemaker or Housekeeper. They sound so commonplace. If she is of the right metal, her Apartment experience will teach her that to become an expert requires brain, tact, sympathy and sweetness. Lacking these qualities, let her not dare to undertake this task which to the eye of the true beholder can never be commonplace.

The Apartment housekeeper not only plans the work, but carries it out in person. She holds the purse, keeps the

accounts, does the marketing, cooks and serves the meals, does the cleaning and attends the door bell. Very often she has hitherto had no practical experience, and the wonder is how well she usually succeeds. The amusing experiences, the dismal failures, and dreadful errors in table waiting are recapitulated for the benefit of friends, but the triumphs are modestly concealed and the lessons of experience hid in her heart.

In cooking she finds chemistry and proportions invaluable, but here again one may fail if one has not the imagination and the soul of a cook. I fear I cannot explain the last phrase, but every good cook, whether she be an old black mammy or the honored head of a Household Science School, will know what I mean and refrain from questioning.

When the week has ended the housekeeper says "good-bye" to the Apartment. Openly, she avows she is glad; secretly, she is full of strange regrets. She has begun to feel a sense of ownership and responsibility. She goes back once more to see whether everything is in order. She wonders if the next girl will do this and this and this. She gives the ferns an extra draught, just in case—She goes out and closes the door softly. She is homesick. Then she meets another girl, the sort "who never did know, and never could know, and never could understand"—and says "Thank goodness, it is all over."

F.E.C.

The Exhibition.

COMING over to the Main Building, boys? The Science Exhibit is to-day you know. Remember the dandy cake we secured last year? Better come early, they're cooking a chicken and——"

"Oh! that sounds good to us, come along, we're ready!"

These logical statements and the old saying "First come first served" proved true, as an early hour in the afternoon found 'the chicken,' (which was cooked so brown and savory by that modern

of Household Science. I think Byron did when he wrote:

"All human history attests
That happiness for man—the hungry
sinner!
Since Eve ate apples, much depends upon
the dinner."

Just down the corridor, my friends! Yes! this is the dressmaking and millinery exhibit. Miss Loveridge wears a smile as she informs the visitors of the different steps which must be passed through before the final perfection which



IN THE MILLINERY DEPARTMENT.

and rather wonderful method—in a paper bag) and in fact all the art displayed in the kitchens, spoken for some even before it was out of the artist's hands.

In one of the kitchens this work and pleasure was demonstrated by the Short Course students and you know:—

"Green and white uniforms,
Skill and care
Go to make up
Some dishes rare."

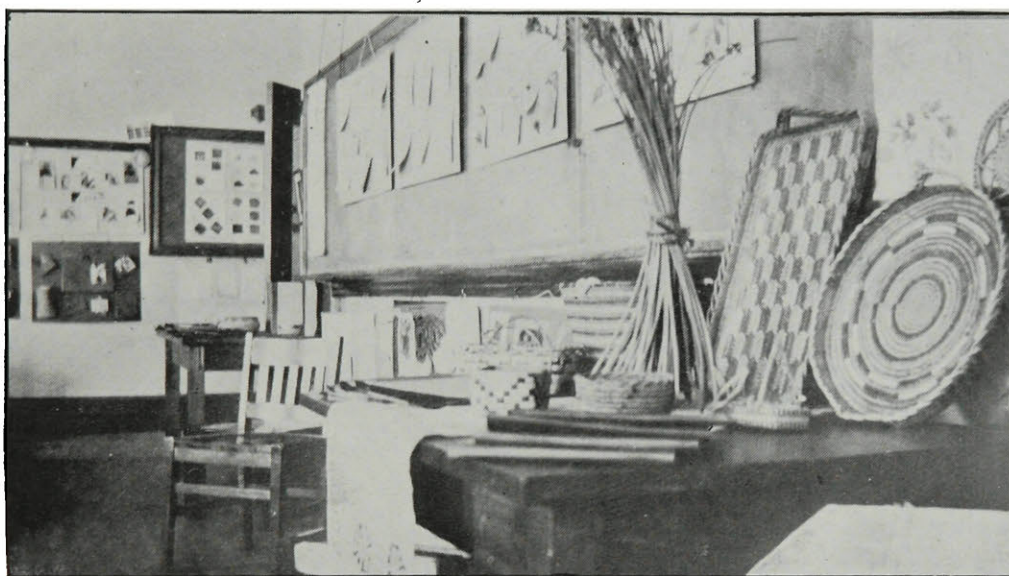
We do not realize how dependent human happiness is on just this phase

is here displayed is reached. Just think, many of the girls never sewed before September! They have worked patiently and faithfully through the tedious models, gradually progressing to the larger and more fascinating part of the work; and the exhibited products of their instruction are greatly to the credit of their enthusiastic teacher. And the wonderful millinery! Frans Hals, himself, would don as charming a smile as his famous Cavalier, if he could but glimpse at some of the reproductions of his world-renowned hats.

In room 136 we find a class, who,

through the careful and beneficial instructions of Miss Hill, are now wholly competent to demonstrate and explain the different methods employed in the modern art of laundering; also the numerous so-called labour-saving devices now brought into use in this work, and which tend to make a pleasure of what was once considered even a drudgery.

brought to light, but they have also been created and developed in many who never even admired beauty in this issue of art. The tables, and other articles of furniture, manufactured by the Short Course, might easily incur the envy of Adams or Sheraton, if they were living to-day, and had the privilege of visiting the exhibit.



A CORNER OF THE MANUAL TRAINING EXHIBIT.

Because it is the last to visit, we are certainly impressed with no such idea that the Manual Training exhibit is among the least; far from it, why Miss Wetmore has discovered artists! Shown by the picturesque watercolours hanging around the walls, the original stencil patterns, candle shades, etc., displayed. Not only have artistic tastes been

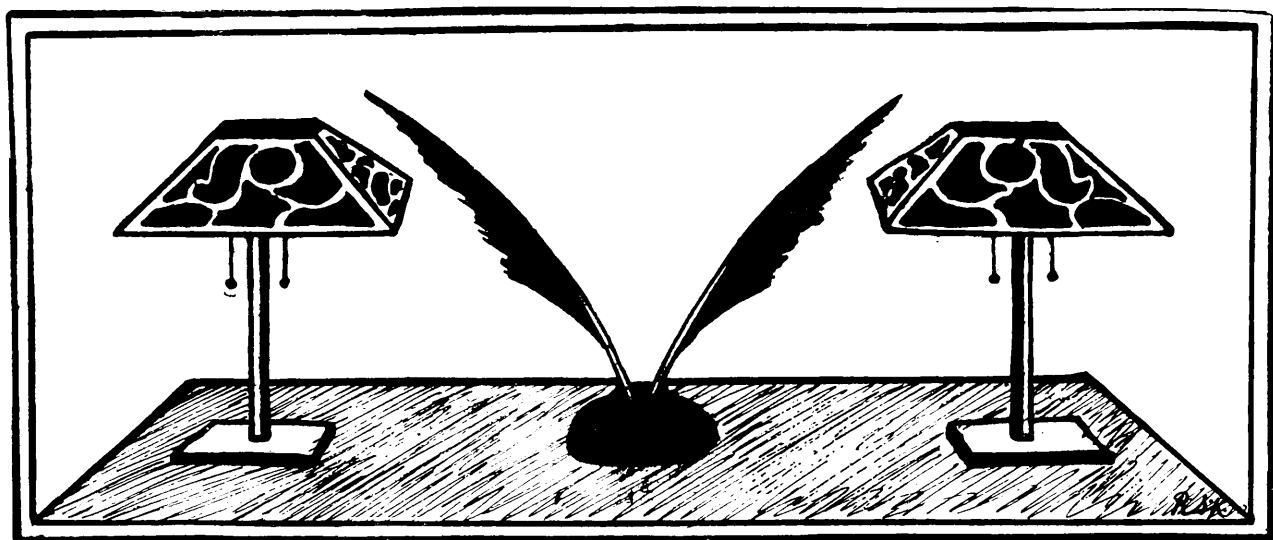
In this exhibition we have seen a little of what Household Science teaches, the best, most modern, most healthful and most economic methods employed in cooking, laundering, sewing, and house-furnishing; in short, all that contributes to Harmonious Human Living.

H. C. G

The Spring Short Course.

THE Spring Short Course in the School of Household Science, Macdonald College, P. Q., will commence March 25th, and continue to June 13th. It includes work in cooking, home nursing, household accounts, household administration, household furnishings, laundrying, millinery and needlework; with either dairying, horticulture or poultry as an optional subject;

and some lectures in bacteriology, biology and chemistry, as pertaining to home problems. These courses are tuition free to farmers' daughters belonging to the Province of Quebec. The other expenses are board and lodging \$4.00 per week, and laboratory fee for the course \$5.00. For other residents of Canada, the tuition for the course is \$25.00. Full particulars will be sent on application to Macdonald College, P. Q.



Under the Desk Lamp.

A PASSING NOTE.



WHEN this issue reaches our readers we venture to say that there will be great consternation at the important events not chronicled.

During the time the magazine is in the hands of the printer, Macdonald will be at its zenith of student activities.

On the evening of February 10 the Guelph competition will be a thing of the past. What the fates have in store for our boys, we dare not predict, but there is one thing we can assure ourselves of, and that is a good display of clean sport and healthy rivalry. Our boys are keener than ever, and with the backing of the multitudes we look forward to a repetition of last year's results. The debate forms a new feature of this year's competition. Of this again we are not pessimistic. We are out to win, but at the same time if it is our lot to suffer defeat we shall redouble our efforts to make another try. Perseverance is indeed the keynote to success. Bearing this in mind, we can and will (as we have done before) accomplish great things.

The International Live Stock Competition found us competing against Guelph and winning out again on their own ground (surely this might be well said when we compare the frequency of their visits to Chicago with ours). These meets have certainly created a great bond of friendship between the O. A. C. and ourselves. It is well that this should be. We only regret that distance prevents us getting in touch with them more often. We hardly need say much more than to wish our boys all success in their third try out with Guelph.

It is possible, too, that the Masquerade will have passed into oblivion by the time this issue appears. The usual arrangements have been made for carrying it through this year and we are looking forward to having a bumper time on the night of February 16.

We must not forget, too, to refer to the interesting programme which has been arranged by the Macdonald Literary Society for the remainder of the session. Several important items of this will also have been rendered before these pages are read.

All that we can promise is to give each and everyone of the above happenings full account in our next.

ILLUSTRATIONS.

We make an earnest appeal to students and others to help us in the matter of illustrations. We shall be glad to have any photographs suitable for reproduction in the magazine. We not only require pictures illustrating social life, but we should also be pleased to get good photographs bearing on any phase of College work. Any prints loaned us for the purpose will be returned to the owner, if desired. In addition to the staff photographers, who have supplied a good many of the illustrations for this issue, we are also indebted to Mr. Boving, of the Cereal Husbandry Department, for a considerable number.

ALUMNI AND SUBSCRIBERS.

From time to time we have had complaints that subscribers have not received their magazines. We do not claim to be free from all possible blame for this, as omissions are likely to and do occur in practically every phase of business, but of this we are sure—that we have had some of these complaints from persons to whom we are perfectly certain copies were sent. It is very evident, therefore, that some few either go astray in the mail or escape from the envelopes by the catch becoming unhooked.

We would esteem it a very great favour, therefore, if subscribers would communicate with the Business Manager as soon as possible after they find out that the issue is published, so that he might make the necessary enquiries into the matter and see that a copy is sent.

A COLLEGE SONG-BOOK.

For some time past it has been a general feeling that the lack of a Mac-

donald College Song-Book was a serious handicap to the complete social enjoyment of our college life.

Our readers will no doubt remember the announcement in our April issue of last year that the Students' Council had decided to offer two prizes of \$15.00 and \$5.00 respectively for the two best original Macdonald College songs. It was hoped in this way to secure at least a few good songs peculiar to the College, and it was proposed to use these as the nucleus of a college song-book.

While the number of songs handed in was not as large as had been expected, the competition brought forth a few very creditable productions. The first prize song, written by Miss E. F. Reid, of Teachers, '12, appears elsewhere in this issue.

The publication of the song-book has been delayed by the pressure of work which fell to the lot of the Students' Council, but a committee is now engaged in the task of compiling a list of suitable songs, and it is hoped that their labours may result ere long in a satisfactory production.

INTER-CLASS COMPETITIONS.

What is truth? asks Bacon, and gives us the answer, that it is the only intrinsic means of all aspiring. What is argument? asks Carlyle. It is the only intrinsic method of parading our doubts that we may arrive at the truth. By boys a competition is looked upon as something to be won or lost. By men, we mean all such as are worthy of the name, competition is but the simplest method of discerning the truth, or failing to discern it. The same is true in Hockey, Football and all games. You form laws to make the game one of high merit—these are the truths and any infringement is an untruth and calculated to destroy the

best interests of the game and the best interests of the society engaged. We say it is the first act of cowardice because you break a law which in good judgment you either assented to or formed yourself. It is self contradiction, and there can be nothing more despicable in human nature than that. You cancel yourself and become straight with a nonentity.

Inter-class competitions pursued in a spirit of win or lose by hook or crook must therefore be disadvantageous, but if pursued with the purpose of ascertaining the greatest truth must be worthy of the highest intellectual construction. Truth gives the greatest happiness to the greatest number, hence the individual must sacrifice himself (we mean with a good conscience) to his class, that class to its college, the college to the country, and the country to the world. Ambition to win for ambition's sake ends in the disaster which befell Shakespear's Macbeth. Ambition for the truth and for the intrinsic happiness of his people ends in the victory of Shakespeare's Hamlet and the establishing of a genuine Majesty.

THE NEXT ISSUE.

In the past the method has been followed of combining in the April-May issue of the magazine the features of the ordinary numbers, together with additional pictures and articles which more completely express the life and organizations of the college.

This plan has met with approval, and it is again our intention to continue in the next issue these desirable features.

This will be particularly a students' number. The graduating class in Agriculture, with their photos, will be given a large share of space, while other classes will likewise receive special attention, all class groups appearing at the same time. A picture of the class team that wins the shield, together with photos of the various athletic teams of the college, will also appear.

It is therefore our desire and purpose to place before you in the next number a full account of student activities, so that we may complete in a fuller measure the chronicles of the college year 1911-12.

"Macdonald."

Con fuoco ma non troppo.
mf

Words and Music by Emma F. Reid.

Macdonald our gracious Alma Mater
Macdonald with pride and admiration

Macdonald of colleges most fair!
Thy name we proclaim o'er land and sea.

None in our sight with thee can compare
Should future years bring days that are free
May we be worthy thee in charac - ter
Back to St. Anne's with eagerness we'll come!

Honor and steadfastness of purpose
If time and distance keep us absent
And loyalty we pledge to thee.
And ne'er again thy face we see.

Ring out a welcome hearty
Ever our thoughts and memory
To share the cheer Macdonald holds for us!
Will dwell within thy college halls content!

Awarded first prize by the Students' Council.



THE HOMECOMING OF THE CHICAGO VICTORS.

The Sunday morning broke in its usual peaceful fashion, and it was about 3 p.m. that there arose in the building a noise something similar to that produced by an earthquake. The seismograph had recorded a startling and awe-inspiring event: Macdonald had won the trophy at Chicago; Canada had acquitted herself with distinction, and our Alma Mater was the heart of her renown.

It was decided without hesitation to give these Trojans a great welcome and reception on the following Thursday, when they were due to arrive at St. Annes. Under the effective organization of "Rod" Kennedy there was a hustle and go that indicated business, a special meeting being called to consider a fitting mode of procedure. Every man was allotted a special duty. The coach in the barn was in due course seized upon, and run up to the station by all the herculean giants it was possible to muster and whose especial business it was to pull this weighty load of importance down to the College. When

the champions alighted they were borne to their destined seats in the coach amidst a sea of doffed hats. Then began that regimental march down the avenue, led by the village band, and heralded by the most unearthly shouts from all sides. Even nature herself was sympathetic and turned the breeze to a whistle in her maple tops. It is no exaggeration to state that as we swung into the grounds we found the snow gone and the grass green beneath our feet—that, of course, was quite in harmony with the situation. The scene was quite impressive, the campus having been surrounded with flaring lights whose reflection from the red brick structures was thrown out into the night. The procession having completed its second round of the campus, hearty handshaking in the dining room terminated the excitement.

The party, presided over by Dr. Harrison and Prof. Barton, occupied a place of honour in the centre of the dining-room and all partook of a hearty meal.

In the evening, a reception was held in their honour, the girls joining in our merry throng. After pursuing several amusements, speeches became the order

of the evening. Dr. Harrison told us of the congratulatory messages he had received and of his fitting replies to these separate sources. Dr. Sinclair followed and humourously told Prof. Barton of some local judging events in which he was interested and which had been proceeding vigorously while he was marshalling his "ironsides" in Chicago. Prof. Barton on rising to speak thanked Dr. Sinclair, and thereafter, in Cromwellian accents, told the boys that "the greatest was beyond." Mr. J. G. Robertson, on behalf of the team, thanked the audience for their appreciation, and said that when they heard the news they were in the hotel—very suspicious—and that though they didn't then lose their heads, they lost them soon afterwards—prodigiously suspicious. The writer is, however, very intimate with this gentleman, and can testify to the thorough sobriety of him who took third place in the individual championships. After supper and some more amusements this enjoyable evening was brought to a close in the usual manner.

THE SCOTCH CURLERS.

That the fame of Macdonald College is not merely local was shown by a visit paid us by the Scots, who came out from Montreal by special train to see how up to date we were in our attitude to Agriculture.

We are glad to welcome such distinguished visitors to our shores and to increase the bonds of reciprocal interest and affection between the different countries and especially between the units of the Empire. The Curlers were shown over the various buildings, and treated the girls to a "skirl" on the pipes. They expressed themselves as being highly pleased with all the buildings and their equipment.

We wish them a happy tour and a safe journey. May they a' ca' their stanes weel!

AN INVITATION.

One of the very pleasant social evenings of last term was that of Thursday, December 14th, when the Macdonald College Club extended to the students an invitation to attend a lecture in the Assembly Hall, by Mr. L. O. Armstrong, Industrial and Colonization Agent of the C.P.R.

Mr. Armstrong gave his now celebrated lecture on the "Land of Hiawatha," which was beautifully illustrated by very many fine lantern slides.

Everyone, we think, was of the opinion that Hiawatha showed wonderful sagacity in choosing such a beautiful country for his habitation.

The "Land of Hiawatha" is that great stretch of territory lying for the most part in Northern Ontario, famous for the magnificent scenery of its many beautiful rivers and lakes, and for its large forests of pine and spruce, which are stocked with all kinds of game.

There is nothing, we think, quite so fascinating as to get into the "wilds," to live in close communion with nature, and to learn the language of the trees and flowers, as did Hiawatha. The "Land of Hiawatha" offers such opportunities, and makes an ideal summer resort for tired city people and weary students.

A large number of students attended the lecture, notwithstanding the fact that examinations were then in progress. This is the second time the students have had the opportunity of listening to illustrated lectures under the auspices of the Macdonald College Club, and we appreciate very much the privilege, also the kindly remarks of the Presi-

dent, Professor Kneeland, who said it was only because most of the meetings were held in private houses that the students were not invited more often.

D.B.F.

THE KING'S DAUGHTERS SOCIETY.

Owing to the various ailments, which were prevalent in the Village during the

longer a hotel, but the headquarters of Father Christmas.

The dining room of the hotel, although small, was prettily decorated with green and gold. Round the walls were the different stalls of ornaments, toys, candies, flowers etc.; last, but not least, was the Christmas tree. Santa Claus was there, with his young and blushing bride, attended by numerous maidens,



HEARD IN THE WITCHES' BOOTH.

"You are a dreadful flirt.

"Have been in love 63 times.

"Your future husband is under this roof.

"In fact, he is paying for this."

early part of the Session, the King's Daughters were unable to hold their usual entertainments.

On Dec. 2nd they held their first entertainment of the Session, which consisted of a bazaar at the Clarendon Hotel. On this morning the Clarendon was no

who also seemed to blush. Father Time, old but youthful yet, sat in his corner sharpening his scythe. At times, above the buzz of voices, would arise a sudden weird shriek; it was the Three Witches singing their dreadful dirge, and looking for those whose fortunes they might tell.

The Three Sisters were perhaps the most popular of the side-shows, although the "Candy Kids" at their stall were very successful. If one was to mention all that happened at this bazaar we should have to fill up a good many people's diaries; but suffice it to say that this was the most successful show that the King's Daughters have held.

At this Bazaar they cleared \$204; half of which sum is to be used to engage a Victorian Order Nurse for Ste Anne's and its vicinity, and the other half for their usual work in caring for the poor and sick. The money that may be raised during the next six months will be given for the maintenance of the nurse.

We cannot close without congratulating Mrs. Harrison and the King's Daughters on their successes up to the present, and wishing them still further success in the future.

C.P.R.

A REMINISCENCE OF THE FALL SHORT COURSE.

Where is the dear old Short Course of September, 1911? Even in this short time they may have wandered far over the face of the earth. Some, we have heard, have deserted the old life of single blessedness and taken upon themselves all the care and management of a home and husband, and others are deliberating upon the same solemn step. We wish them all happiness and trust they will put into practical use the valuable information obtained here at Macdonald. Surely if they follow along these lines nothing but good could possibly result. For those whom Cupid's darts have not yet pierced, we have the same good wish, and may they all, where ever they may be, never forget our dear "Alma Mater."

We extend a hearty welcome to the New Short Course and hope that they will enjoy life here and be able to say as truthfully as their predecessors:—"When we go you'll miss us."

M.L.

Y. M. C. A. NOTES.

This organization still retains its popularity among the students.

The Association sent three delegates to the Boy's Work Conference held at Sherbrooke on December 29th, 30th, and 31st. These delegates, Messrs. E. A. Lods, A. E. Raymond and E. Melville DuPorte, reported a very interesting trip, and were especially enthusiastic over the kindness of the people of Sherbrooke, who so hospitably entertained them during their stay. The matters discussed, though not directly of much value to the students of Macdonald, were very interesting and helpful as the delegates thus became acquainted with the great needs of the "Boy World," the great work which is being done and the still greater opportunities for work among the boys.

Among the High School boys there was a strong movement in the direction of cleaner athletics and higher moral tone. A society was organized for the purpose of discussing this question and giving advice to the boys interested in the movement. Mr. DuPorte was elected President of this Society.

On Sunday, Jan. 7th, the delegates rendered their reports to the Association.

The Society is still fortunate in having addresses from members of the staff and others. The speakers on the 14th and 21st of January were Mr. Bates and Dr. Sinclair respectively. The former gave a "Plea for the study of the Old Testament;" and Dr. Sinclair spoke on "Religious Instruction in Schools."

CHRISTMAS VACATION AT THE COLLEGE.

The Christmas Holidays have again come and gone, yet their interesting and oftentimes exciting episodes must live in the minds of the participants for a long time to come. Indeed Shakespeare could not have found a more luxuriant pasture whereupon to feed for the production of his comedy. The first thought of the holidays, which is long before they ever come, is not of the brightest nature, a sort of feeling: "O there won't be anything doing;" but the first taste of them

—as it only ought—a clean sheet as its first resolution, which so far, be it said to its credit, has been admirably sustained. The constant and always most enjoyable feature was the evening programme, which as a rule was spent in dancing; and here it is most fitting to extend to Mrs. Muldrew our hearty appreciation for the freedom which she gave us of inviting ourselves to these informal yet none the less enjoyable evenings. The good attendance was the best proof of this appreciation. It became the boys



THE "LEFT OVERS."

was enough to dispel any such awkward hallucinations. Meals seemed to grow richer with the approach of Christmas and New Year. There was one inconvenience; the proportion of the "Left Overs" to the "Remnants" stood at something like 1 to .02, which, however, on any special evening was corrected by nature in some mysterious fashion establishing equilibrium.

We generally associate Christmas with pleasures on the ice, but this was denied us for once, though the New Year brought

to show their gratitude, and this they accordingly did on New Year's night when they invited all the girls to a dance in the "gym." What with dancing and refreshments it proved a great success, and maintained the reputation of all former years. There are few if any exercises better calculated for the benefit of those of sedentary habits, and it is a mistake to say there is nothing in dancing. Rhythmic and harmonious movements are things worthy of cultivation. Now, there is a distinct connection

between dancing and scant attendance at breakfast. It cannot be the result of late evenings as we always adjourned at a respectable hour. There can only be the one conclusion; namely, that the interesting conversation at the dance has furnished sufficient food for the production of thought until next day at dinner and afternoon on the rink.

Our story would be very incomplete if we omitted to mention the various excellent entertainments given outside the College. Mr. and Mrs. Blair, Mr. and Mrs. Powter, and Miss Whortman were all instrumental in furnishing enjoyment in the shape of cards, dancing, or a combination of both.

Everything is generally quiet on the last night of the vacation, but Miss Rollins came to the rescue of many thirsty souls by giving them a good old time in the Faculty House, which proved a worthy finish to the dancing panics.

We adjudge it proper to enumerate the moving spirits. These were a goodly company of girls, who owing to their habit of moving *en masse*—we may term Hay's Young May Bees—made hay while the sun shone; also be it known one who had an admirable Bent towards giving everyone a good time; a third who Chiselled home many a deep impression on the phrenological table of her male confreres. Still another who flooded the atmosphere with a "rain of melody of instincts, so divine." There certainly was any amount of skylarking, as evidenced by the frequent raids to the Sleeping Beauty on Old Year's night. May many more pleasant holidays be theirs!

MODEL LEAP YEAR EVENING.

The first reception since the vacation was given by the Model Teachers on the evening of January 20, and was

held first of all on the skating rink and later in the girls' gymnasium.

The girls were at first somewhat shy, but as the evening hours waned away this strange shyness gradually wore off. Such an evening affords the girls a splendid opportunity to display their resources and to be able to take the initiative in the world's drama.

The skating was very enjoyable and everyone appreciated the novel party. About nine o'clock an adjournment was made to the gymnasium, and after receiving some delicious refreshments and some excellent amusement the boys returned home very thankful to their neighbours across the campus for their hospitality.

Oh, that Leap Years came more often!

THE MACDONALD APIARY CLUB.

The committee of the Macdonald Apiary Club would again call attention to the schedule of its meetings, as printed in a previous issue of this magazine. This club has already held several well attended and enthusiastic meetings. The subject of "Housing and Winter Care of Bees" was well handled by Mr. J. Fixter, many useful and practical ideas being brought out. Prof. Swaine told us many interesting things concerning the life-history and the work of bees. Prof. Lochhead, discussing the subject of "The Honey-bee as a Friend of the Farmer," thoroughly convinced all who heard him that if the best crops are to be produced, the farmer must keep bees to assist in the pollenating of his plants. The meetings to be held during the coming months will doubtless be as interesting and profitable. Persons interested in Apiculture are cordially invited to become members of the Macdonald Apiary Club.

H.B.D.

CRITCHLEY'S CHARGER.

We introduce a picture of one of our old social friends of the "Dandy." Readers who are now students no longer may recognize him as that famous charger which once appeared on Sports Day at the head of a great retinue. Critchley had purchased him from Methuselah's Stud, and our friend is its last survivor.

THE MACDONALD COLLEGE LITERARY SOCIETY.

Since the last issue of our magazine two important meetings have been held under the auspices of this Society. The first of these was an elocutionary contest which took place on 2nd Dec., 1911. We are glad to find that the authorities responsible for the excellent programme, which this Society always



CRITCHLEY'S CHARGER.

THE CHOIR.

Saturday night, Jan. 13th, the choir had the extreme pleasure of being entertained at the house of Mrs. Stevenson, where Mr. Ryse, the choir leader, resides. The evening was most enjoyably spent, playing games of various kinds; but music was the chief feature, which one might expect from so talented a gathering. Time passed all too quickly, and after delicious refreshments, graciously prepared by their charming hostess, they wended their way Collegewards.

M. L.

affords, did not find it necessary on the resumption of inter-class debates to strike from their schedule its last year's substitute—the elocutionary contest. The more expression a person gets into a reading or recitation the more will they understand it and fully appreciate its significance. This would appear to be the true value of this competition.

The competition was in two divisions;—a girls', consisting of three competitors, and a boys', consisting of a like number. One prize was awarded to the winner of each division.

The contestants and their subjects were as follows:—Miss McFarlane, "Bernardo del Carpio;" Miss Read, "Pelong;" and Miss Travers, "The Legend of the Organ Builder." They all did justice to their selections, but Miss Read made a wise choice in that she took a piece which suited her voice admirably and thus won the girls' prize. In the boys' competition the three who entered were Mr. M. Savoie with "Caleb's Courtship;" Mr. D. E. Lothian with Tennyson's "Ode on the Death of Wellington;" and Mr. W. Baird with "New England Weather." Mr. Savoie, whose ease and address would have done credit to a stage actor, deservedly won this contest.

Miss Fisher thereafter very graciously presented the prizes.

The evening's entertainment was made all the more enjoyable by Miss Farnsworth who gave us a piano solo and also by Miss Travers who treated the audience to a delightful song.

The next meeting of the Society was held on the 18th January in the Assembly Hall, Mr. J. G. Robertson in the chair. Miss Rollins began the proceedings by giving an excellent rendering of our old friend "Sally in our Alley," and so heartily was this received that she was obliged to give us an encore. The main part of the programme, the Sophomore-Freshmen debate, was then entered upon. The question before the house was as follows:—Resolved "That Free Trade would be beneficial to the Canadian Farmer." The Freshmen supported the affirmative, the Sophomores the negative. The former were represented by Messrs. Masson and Edwards, the latter by Messrs. Westgate and Muir.

Mr. Masson, on rising to speak, devoted a few minutes to the introduction of his year on the field of debate, and so

nicely did he perform it that the very first minute gained his side applause. He dealt with the subject in a thoroughly scientific fashion and one felt that the opposition had no easy walk-over. He spoke of privileged trades as being unjust to the rest of the community, and nothing short of legalized robbery. He calculated the loss to every farmer to be anywhere between 100 to 300 dollars, and in view of the fact that the farming population of Canada stands at 66% "you favour the classes instead of the masses of the people." This, he continued, will simply have the effect of making the rural population crowd to the town and take occupation in the favoured trades, thus latterly causing lack of crop and food production. He concluded his excellent delivery by declaring free and just competition to be the soul of trade.

Mr. Westgate upheld Protection as the only means of preserving Canadian Independence, so that whatever strife should take place without our walls to the detriment and dislocation of supplies, we would still be safe and all sufficient for ourselves within. He also mentioned the fact that if you help the manufacturers you create a larger market for farm produce. The speaker terminated his remarks by citing Germany, the U. S. A. and Britain as having flourished under protective tariffs.

Mr. Edwards, on seconding the Affirmative, whipped a string of convincing figures in the face of the Opposition, demonstrating the great increase in price of goods caused by Protection, and asked his opponents what sense there was in paying more for an article when you could get two just as good for the same price. Tariffs were also mentioned by him as being the cause of corruption in trade.

Mr. Muir, seconding the Negative, pointed out the value of having manufacturing industries in Canada and their beneficial effects on the farming community. He also discussed the value of Protection as shown in results of protectionist countries.

In the rebuttal Mr. Masson again emphasized the importance of sending goods to the most profitable markets, whether that market was in Canada or out of Canada, and pointed out the friendly attitude which such trade would stimulate between this country and her neighbours.

Dr. Snell, after prolonging the suspense, gave judgment in favour of the Freshmen. The understanding between the leader and his colleague was first rate, the former dwelling on the scientific principles, while the latter rubbed in the practical. When one considers the short time given for preparation, namely a week, this performance is deserving of high commendation.

The programme of this Society has still many interesting events to occupy its attention, chief of which are the public speaking contests, a play, an inter-collegiate debate with the O. A. C., Guelph, the final of the inter-class debates—Seniors v. Freshmen—at the end of February, as well as several interesting debates among the girls.

THE PUBLIC SPEAKING CONTEST.

The second annual public speaking contest for the Faculty of Agriculture was held in the Assembly Hall on the evening of January 27th. As was the case last year, the contest was arranged for at a date that would enable as many as possible of the Winter Short Course students to attend, thereby bringing them into closer touch with the regular students and affording them an oppor-

tunity for a closer insight into the social life of the College. Last year this event was arranged by a committee representing the different literary societies in the Faculty of Agriculture. This year, however, it was under the direction of the Macdonald Literary Society, and although the committee of this society is at present taxed to its utmost with work, the change may be said to have proved an advantageous one in every respect.

The speeches were, without exception, limited to subjects pertaining to agricultural or rural life and education. Although the speakers are as yet only students, the arrangement and delivery of some of the speeches was of a standard that many of our noted public speakers and politicians would find hard to excel.

The speakers and their subjects were as follows:—

R. S. Kennedy, '12, "The Farmer and the Tariff." George Young, '14, "The Evolution of Canadian Agriculture." J. A. Simard, '12, "The Farmer in Politics." L. D. McClintock, '13, "Some Notions regarding Elementary Education." E. A. Lods, '12, "Agricultural Societies." D. E. Lothian, '13, "An Appeal for the Conservation of Canadian Forests."

A generous prize list was awarded by the society, the best four contestants receiving prizes of different value in order of merit. The first prize was awarded to R. S. Kennedy, who was closely followed by D. E. Lothian; the third and fourth to E. A. Lods and J. A. Simard respectively.

The society was very fortunate in securing the services of Dr. Sinclair, of Macdonald College, Mr. Shepherd, of Como, and Mr. Allardice, Editor-in-chief of the "Family Herald and Weekly Star," as judges of the contest. Mr.

Allardice acted as convener of the judging committee and favoured us with a complimentary criticism of the contest, after which Mrs. Allardice graciously presented the prizes. As a pleasant variation between speeches, musical selections were rendered by Miss Thorne and Messrs. Savoie and McBean, who were in each case capably accompanied by Miss Read on the piano. F.S.B.

CLASS '13 LITERARY AND DEBATING SOCIETY.

Since the publication of the last issue of this magazine the above society has held two very interesting meetings. On November 30th the question of Woman Suffrage was debated. Messrs. Lothian and McClintock in their usual forceful manner upheld the granting of votes to women. They put their side of the question so strongly that the dire dismay depicted on the faces of the men present, as well as the gleam of fierce joy issuing from the eyes of the militant suffragist party showed that it was at one time thought that they would win their point. Fortunately for the peace of us poor long-suffering, down-trodden men Messrs. Richardson and O'Brien were able to beat down the arguments of the former speakers and it was decided that as far as women were concerned, votes were edged tools—dangerous, not to be played with.

On the evening of January 25th the Society held a literary and social meeting. Tennyson's Life and Works formed the topic of the evening. The programme included a piano solo by Miss Emma Reid, a cornet solo by Mr. Savoie and a selection by the Class Quartette. Mr. DuPorte gave a paper on the life and works of Tennyson, dealing specially with Tennyson as a representative of his age. Readings

from Tennyson were well rendered by Messrs. Dash, Moe and McClintock. As this was the anniversary of Burns' birthday the programme was deviated from in order that Mr. Lothian, in his inimitable Scotch, might favour us with some of the beautiful verses of his compatriot.

CLASS '14 LITERARY SOCIETY.

Owing to the pressure of the examination work for some time before the vacation, the regular meetings of this Society were cancelled. At present, however, active preparations for the Inter-Class debate are going on, and the Society will be represented in the forthcoming Public Speaking Contest. During the coming months the Society hopes to hold a number of debates, as well as several evenings of general literary interest; a class Public Speaking Contest may also be arranged for. The Literary Society is deserving of the support of all its members, and it is only through united and enthusiastic work that the greatest amount of benefit can be obtained from it.

CLASS '15 LITERARY SOCIETY.

The Freshmen Literary Society is coming to the front in leaps and bounds, and after their sweeping victory over the Sophomores on January 18th they will surely be looked upon as one of the strongest organizations in the College. Although young, and with much undeveloped material, the showing which they made in the inter-class debate has been satisfying to all concerned.

From now on the society will hold weekly meetings with the object of developing a number of efficient debaters, two of whom will be picked to meet the Senior team in February for the championship of the Faculty of Agriculture.

Faculty Items.



UNDER the presidency of Professor Kneeland, and the secretaryship of Miss Marguerita Macnaughton, the Macdonald College Club continues to maintain the high level of excellence in literary, musical and social entertainment established by former executives.

The first meeting of the Club for the present College year was held at the home of Dr. and Mrs. Snell where an excellent programme of vocal and instrumental music was rendered by talent from Montreal. To the second meeting the students, as is the custom, were invited. Mr. L. O. Armstrong delighted his audience with his beautifully illustrated lecture on "The Land of Hiawatha." His buoyant optimism, born of an intimate acquaintance with the subject matter of his address, created in his audience an enthusiasm which was contagious. For the information and entertainment of those who have recently become connected with the College, a social evening has been planned for the February meeting. "Reminiscences of Pioneer Days at Macdonald" has been chosen as the topic for the evening.

Insufficient snow for good tramping or tobogganing has seriously interfered with the carrying out of the programmes planned by the Snowshoe Club. A tramp and an evening's tobogganing are the only outings taken by this organization thus far.

The personnel of the teaching staff of a College of any considerable magnitude is always subject to change. The commercial world with its higher rate of pecuniary remuneration, its wider scope for initiative and its ringing challenge

to every man who enters its lists may always be depended upon to claim many adventurous spirits. Enlarged fields of usefulness, which present splendid opportunities for rendering increasingly valuable services through teaching or investigation work, make an irresistible appeal to others.

To one or other of these causes is due the fact that Macdonald College has recently lost the services of a number of valuable men. Mr. F. C. Elford, who has been Manager of the Poultry Department since the College opened and through whose untiring energy and marked organizing abilities the Department has been built up, has resigned to become Director of the Educational Bureau of the Cyphers Incubator Co., of Buffalo, N.Y.

Mr. J. M. Swaine, M.S.A., who for the past four years has rendered the Institution distinguished services both as a lecturer and investigator in Biology, has been appointed Assistant Entomologist at the Central Experimental Farm, Ottawa. Mr. Swaine's appointment comes as a well-earned recognition of his abilities as an investigator in entomological problems. In his new position he will devote his attention chiefly to a study of forest insects, a subject in which he has been specializing for a number of years. His successor, Mr. W. P. Fraser, M.A., is a graduate of Dalhousie and Cornell Universities where he specialized in the study of plant diseases.

Mr. W. H. Brittain, B.S.A., who succeeded Mr. Douglas Weir, M.S.A., as Assistant in Biology, has recently accepted the position of Assistant Botanist in the Seed Division of the Dominion Department of Agriculture at

Ottawa. Although Mr. Brittain had been a member of the Teaching Staff for less than a year, the qualities which distinguished him as a student were insuring for him every promise of success as a teacher.

Mr. R. B. Cooley, B.S.A., who for the past year has been Assistant in Animal Husbandry, and who resigned early last fall to enter business in British Columbia, has been succeeded by Mr. W. J. Reid, B.S.A., of the first graduating class of Macdonald College.

L. S. K.

APPOINTMENTS.

Mr. M. A. Jull, B. S. A., has been appointed lecturer and manager of the Poultry Department at Macdonald College, in succession to Mr. F. C. Elford.

Mr. Jull is a distinguished graduate of the Ontario Agricultural College, Guelph, Ont. On graduating from that institution he was appointed assistant poultryman at the West Virginia Experimental Station, where he served under Professor Atwood. He remained there over a year, conducting investigations and experimental work in poultry progress. While there he had charge of 2,000 fowls on a 60-acre farm, and scientific as well as practical experiments were carried on in the feeding, breeding and raising of poultry.

Mr. Jull left this position, accepting a position with the British Columbia Government, to become the poultry expert for that Province, which position he filled very acceptably until appointed Live Stock Commissioner for the Province. As poultry expert, his chief work consisted in the organization and development of the poultry industry of British Columbia. He started many local associations and also organized a

provincial poultry association to which the local associations were affiliated. Although the youngest provincial association by a number of years, within a year of its organization it had become the strongest.

Mr. Jull has published a number of bulletins upon the best methods to adopt in the raising and marketing of poultry.

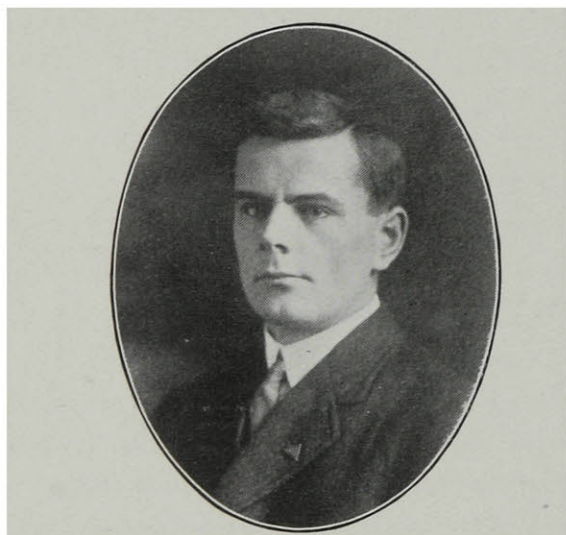
In addition to his organization and government work, Mr. Jull has also had considerable experience with the well-known firm of Gunn Brothers, packers and provision merchants of Vancouver, of which the firm of Gunn, Langlois & Co., of Montreal, is the eastern representative.

It will thus be seen that Mr. Jull comes well prepared for his duties at Macdonald College.

The position of assistant in biology, vacated by Mr. W. H. Brittain, B.S.A., has been filled by the appointment of Mr. Peter I. Bryce, of Ottawa, Ont. Mr. Bryce is a specialist in botany, and has in addition taken the courses in the Faculty of Forestry, Toronto University. He has also had considerable experience in field work, having spent two summers in forestry service with the Forestry Branch, Ottawa; four months in forest nursery work, and about a year in a forest survey for the Canadian Pacific Railway and with the Turner Lumber Co., of Toronto. He has also spent some time at the Dominion Biological Station at Go Home Bay, Ont., doing research work under the direction of Dr. B. A. Bensley, of Toronto University, in general field work in cereal husbandry for the Ontario Agricultural College, and as assistant in the botanical courses given to the veterinary students at Toronto University.

Some College Presidents.

After a thorough and diligent search through the archives of Bloomfield Station, N.B., we find that in 1889 a certain child was born. Through some negligence on the part of the astronomers there was no star to guide the wise men to worship this child. The child has developed into L. Carlton Raymond, who is now filling the office of President of the Y.M.C.A. "L. C." or "Elsie," as some know him, received



L. C. RAYMOND.

his early training on his father's farm, at the local school, and later at the High School, St. John. Giving up hope of receiving that visit from the wise men, in 1908 he set out to seek them, and came to Macdonald. Here he joined the ranks of Class '12 and has been happy ever since. Since coming here, Raymond has been connected with several successful student organizations. He has done good work on class, College Literary Society, and Y.M.C.A. committees; on the Magazine Board, on several class athletic teams, and on the College Baseball Team. While doing this work he has managed to take a high rank in the academic work. With this record of good work behind him and knowing his capabilities, we do not hesitate in

predicting that the future will crown his work with efficiency and success.

J. G. Robertson, or "Doc.," as he is more commonly known among us, hails from Churchville, N.S., where he was born and brought up. He entered the college in 1908 with a matriculation standing. Since that time he has not only proved himself a clever, intelligent student, and good fellow, but has shown splendid executive ability, as evidenced by the fact that most of our student organizations have at one time or other had the benefit of his cheery smile and wise counsel. In his third year "Doc." was vice-president of his class, and president of class '12 Liter-



J. G. ROBERTSON.

ary and Debating Society. He is at present treasurer of his year. During part of his third and fourth years he filled the position of joke editor on the magazine staff, and represented his year on the executive of the Athletic Association. For the past two years he has been connected with the executive of the Macdonald Literary Society of which he is now President. Of his ability as a president no criticisms can be made. We wish him all success whatever his future sphere of life may be.

Frae "Kirkcoobrae," in Bonnie Scotland, comes the popular President of the Macdonald College Athletic Association. Coming to Macdonald as a member of Class '13, Gibson's industrial appearance caused him to be elected as year representative for his class on the Athletic Association Committee. In his Sophomore year he was elected Secretary of the above organization, this position

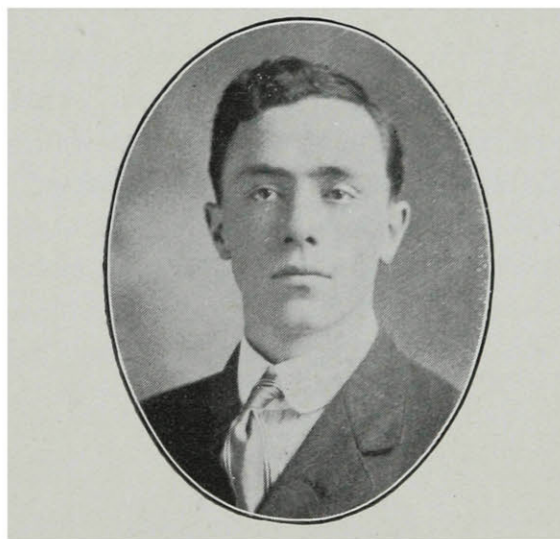


W. GIBSON.

having thoroughly qualified him for his present honourable position as President. Although not a member of any of the first Athletic teams, "Bill" was always a keen competitor in Field Day events, having won for his class in his Freshman year the weight events. The keen interest since displayed also gained for him the position of Track Manager for 1911.

Whether the influences of environment are hereditary or not is a question that has bothered scientists since the time of Aristotle, but if they are, truly we have a varied inheritance in the per-

son of Emile A. Lods, for he has inhabited successively Quebec, New Brunswick, Ontario, Massachusetts, Delaware, Wisconsin and Macdonald College. Yet we are sure that everyone is agreed that the result has been a most happy one. During his life at the College he has filled many important positions, such as Experimental Editor of the Magazine and President of the College Literary Society in his second year; President of the Junior Year; and in his fourth year Secretary of the Y. M. C. A., Vice-President of the Class and Chairman of the Residence Committee, the latter of which he has handled so successfully that Xmas brought him re-elec-



E. A. LODS.

tion, an honor in no wise a mean one. Lods is neither musical nor athletic, but, unlike some of us who are not, he knows it. Possessed of a genial disposition and of natural ability, a pleasing talker in both French and English, we predict a very promising future for Mr. Lods and in that future we wish him Godspeed.

Miss Elizabeth Read, the new President of the Court of Honour, was born at Chisamba, Angola, West Africa. At the age of ten years she came to Canada, and has since resided in Montreal. She was educated at the Technical High School there, and in 1910 came to Macdonald



MISS ELIZABETH READ.

to take the course leading to a teacher's Model Diploma. Gentleness, loyalty and quiet strength are the outstanding characteristics of our new President, and we feel sure of another three months of good order, and wise government.

Miss Jennie A. Fraser claims Pictou Co., N.S., as her birthplace, and right



MISS J. A. FRASER.

proud is she of the fact that she comes from "God's own Country," as Nova Scotia has been called.

After the usual number of early years spent at local schools, Miss Fraser continued her studies at the Halifax Ladies' College, graduating from there with honours. In her first year here she had the distinction of leading her class in Household Science, and in her second is recognized as a leader in all phases of College life. As last term's President of the Court of Honour, a position by no means to be coveted, she ruled with discretion, tact, and firmness tempered with mercy. Bright, competent, energetic and well poised, we feel sure that when she leaves Macdonald as a professional housekeeper she will achieve every success where'er she may be.

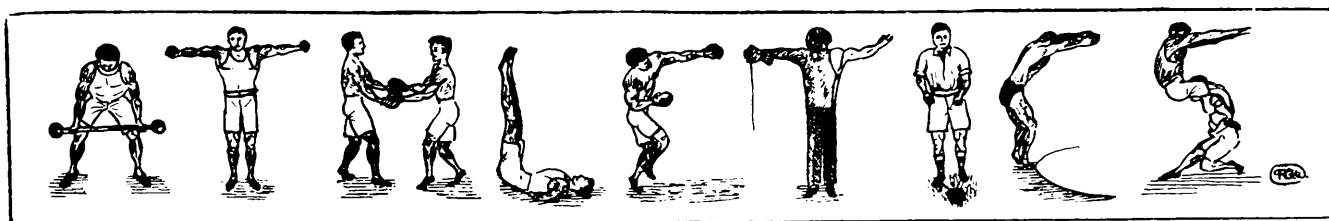
Miss Violet Scott who hails from Scotstown, Que., was unanimously elected President of the Macdonald Girls' Athletic Association at the beginning of the fall term. It was a wise choice on the part of those who elected her,



MISS VIOLET SCOTT.

as she has proved to be all that is expected of an athletic president.

Miss Scott takes great interest both in basketball and baseball, and is competent in both games, although she has decided that basketball should be her "special."



The Macdonald College Athletic Association.



THE Macdonald College Athletic Association held its annual meeting for the election of officers and for receiving the reports of the year's work on January 5th.

The balloting for officers resulted as follows:—

Hon. President, Dr. Harrison; Hon. Vice-President, Prof. Barton; Hon. Members, Dr. Sinclair, Dr. Todd, Dr. Walker, Messrs. Cutler, Bates, Vanderleck, Powter and Doig.

President, W. Gibson, '13; Vice-President, A. R. Montgomery, '14; Secretary, R. F. Williams, '14; Treasurer, W. Ford, '13.

Committee, Kennedy and Campbell, '12; King and Huestis, '13; Young and Rodden, '14; Walker and Presley, '15.

The retiring President, Mr. A. Campbell, himself one of our best all round athletes, has proven that he was the right man in the right place. He leaves the Association in a flourishing condition financially, and with every prospect of future prosperity. Through his efforts largely were the Inter-Collegiate series of games with Guelph instituted and made possible, as well as the great success which attended our Fourth Annual Field Day. "Archie's" untiring work for and interest in the Association has won for him the gratitude of all concerned in athletics at Macdonald College.

The president-elect, Mr. W. Gibson, alias "Bill," surely needs no introduction to Macdonald students. Like Mr. Campbell, he was on the judging team which made itself and the College so prominent by their Chicago victory, and, therefore, it would be presumptuous on our part to attempt to introduce "Bill" to a community where his name is a household word. As secretary of the Association for the past year he has become thoroughly acquainted with the work. This, together with his keen interest in athletics, and the manner in which he carried out his work during the past year, well merits the honor and confidence which the students have placed in him. We wish him all success in his new position.

HOCKEY.

Hockey is receiving a great "boost" at Macdonald this winter. More games are going to be played than formerly, since an Inter-Class series has been instituted, and the men will have the advantage of a training table, which can hardly be over-estimated. The O. A. C. series will act as a stimulus in keeping up interest and in bringing out the best there is in our team.

"Ralph" Huestis was the popular choice for Captain, and Prof. Barton was again asked to coach the team, and we can only wish him as much success

as he has had in a like capacity in former years.

We are beginning this season with five of last year's line up, but we will miss "Billy" Middleton, our former speedy and hard shooting left wing, and especially "Rod" Kennedy, our cover point, the mainstay of last year's team.

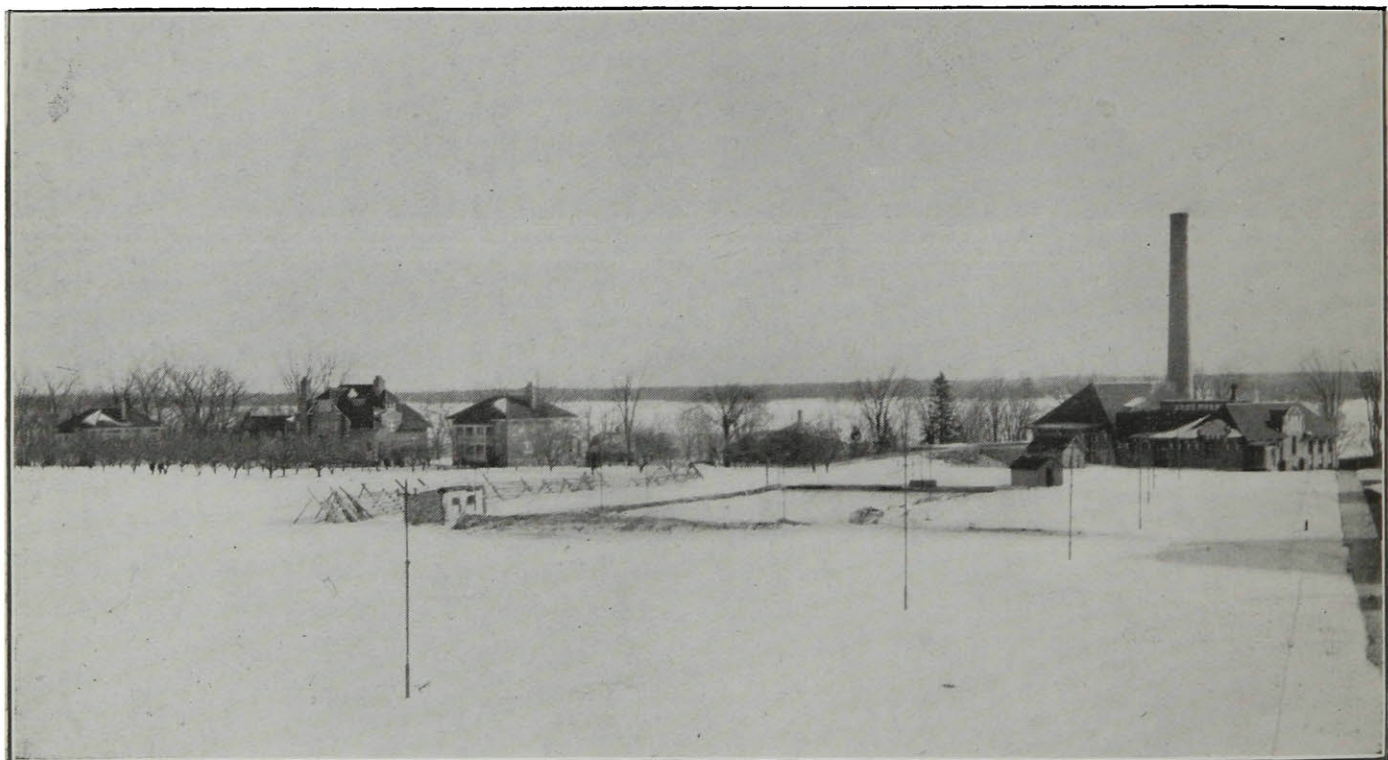
One game has already been played in which Macdonald defeated St. Lambert, 2 to 1. The game showed that while our defence was strong, the for-

The following was the line up for the Macdonald—St. Lambert game played on Jan. 13th.

Goal, Oughtred; Point, Ross; Cover, Westgate; Rover, Huestis (Capt.); Centre, Rodden; Right Wing, Ness; Left Wing, Young.

BASKET BALL.

Great interest is taken in Basket Ball this year, which is due to the excellent team representing us. Before 'Xmas



THE COLLEGE RINK.

wards were lacking in team play and shooting ability, also to some extent in speed. Only by persistent practice and a whole-hearted attempt to get into the best condition possible can we hope to overcome these defects.

As it will not be long before we meet O. A. C. in hockey, and as reports show that their team is stronger than ever, we should take the hockey situation seriously if we are to duplicate last year's success.

"Monty" and his team were doing well and have yet to lose a game. They are getting into shape again in preparation for some hard games which have been arranged and ultimately for the O. A. C. games. We can depend on our boys to reverse the score of the game at Guelph last year.

The second team is doing good work and have played several matches, losing only one and that to "The Nabobs," a Montreal Y.M.C.A. team, and which

we had previously defeated on our own floor.

The Inter-Class games are very exciting, and have been witnessed by large crowds of students. It is now a well-known fact that after the Senior-Sophomore game, in which the Sophs won out, the price of fudge constituents went up considerably, due to the increased demand from Macdonald

girls. It was a hard fought game, but the Sophs led all the time and it was evident from the first that they would win. By winning this game the Sophomores have practically won the championship of the Basket Ball Inter-Year League and have made a long step towards the ultimate winning of the "Shield" for indoor games.

Athletics Among the Girls.



AS the sun rose on Dec. 16th, so our spirits rose and amidst shouts of "Good Luck" the train bore our happy nine toward the goal of our hopes, where we expected to win our first basket-ball game.

Landed in the midst of the seething mass of the city we were somewhat unnerved, as we were accustomed to the calm peacefulness of rural life.

Let loose in the gymnasium which had some trouble in containing us we tried many ways and means of avoiding each other. This being impossible we played only two thirds of our team.

After a truly strenuous and exciting game we went off the floor entirely vanquished. Our spirits were revived somewhat by the dainty tea served us by our opponents and the encouraging words of our worthy referee, Miss Dowie.

Fearing nothing but hoping all things, we returned home to prepare for the return match.

The score was 27-33 in favor of the W. A. A. A. The line up was as follows:—

W.A.A.A.		Macdonald	
E. Dettmers	} Home	{ A. Cauldwell F. Chisholm	
D. Mowatt			
M. Moir	} Centre	{ V. Scott K. Hill	
M. Scott			
H. Moore	} Defence	{ M. Lawrence M. Scott	
F. Stewart			

On Jan. 13th, we again had the privilege of meeting our old friends the W. A. A. A. girls.

As we cannot lay any of the blame on the gymnasium this time we are forced to admit that their play was in reality superior to ours, for they won the game with more points on unfamiliar ground.

We do not feel too despondent, however, when we think that most of these girls received at least one year of training here. This reminds us that great things may await us in the future.

The score was 16 to 25 in favor of W. A. A. A.

Who has heard it said that Macdonald takes defeat well and does not get discouraged easily? This is very necessary at this stage of our basket-ball career, for next Saturday, and the one following, we are to meet the R.V.C.

Girls, do not lose your interest in basket-ball now, when we need you most!

BASE BALL.

Owing to the untiring efforts of the manager, Miss C. Shaw, and the help of the base-ball girls, who are few in number, we are sorry to say, quite a good team is expected to go into town on Feb. 3 to meet the W. A. A. A.

team. We wish them all success and good luck.

SKATING.

The rink is now in good order and a great many of us are spending most of our recreation hours there.

Now that the lights are on and the weather is favorable, we avail ourselves of the privilege of skating from 6.30 to 7.45 which, we think, is a splendid preparation for the study hours which are to follow.

We would like to congratulate the rink committee on the entire satisfaction they have given to those in our residence who make use of the rink.

M. S.

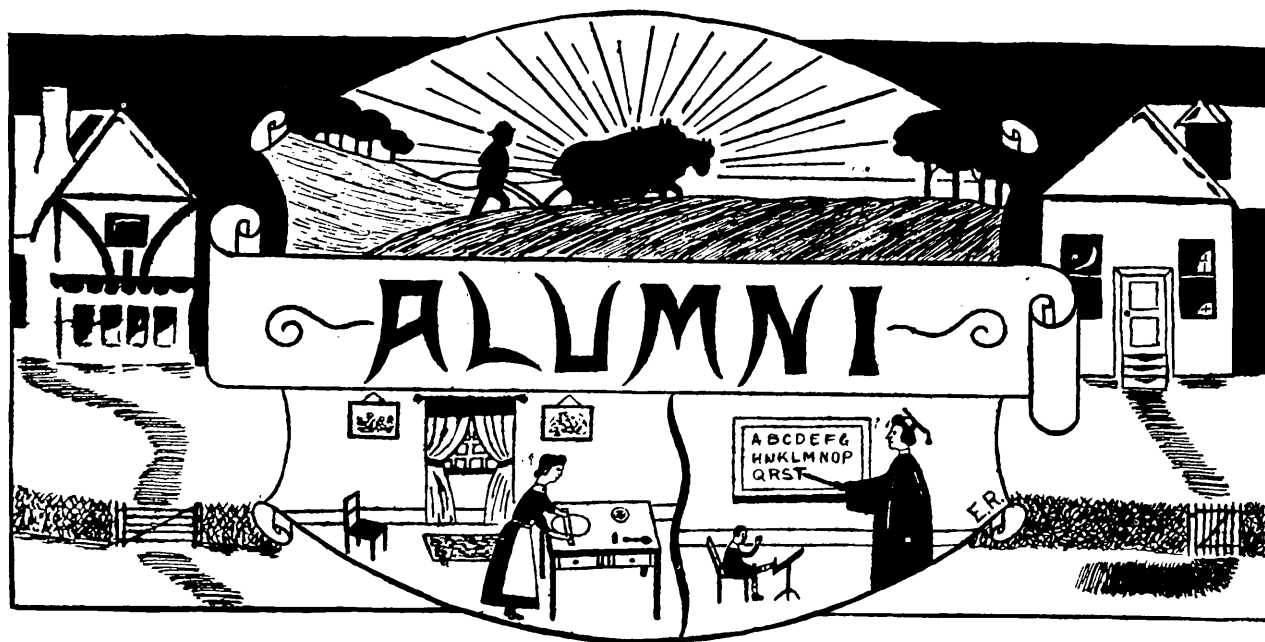


DOWN THE RIVER.



HOROSCOPIST SERIES.

No. 2—FUTURE OF THE TEACHER GRADUATE.



AGRICULTURE.

F. H. Grindley, B.S.A. of '11, visited the College for a few days before Christmas. His many friends were pleased to see him here again. It was observed that he still personifies his old appellation of "Sliver."

We are glad to have with us again J. G. Ross, of Class '13. "Gord" is going to spend three months with us, taking a short course. He then expects to return to his farm at Boharm, Sask. He intends to practise mixed farming as he believes that is the only thing for the West.

Last reports from Wm. Newton, who left Class '13 shortly before Christmas, say that "Bill is in the bush." He has regained his health, we are glad to hear, and is getting in touch with nature on the farm.

W. R. Beach, also of Class '13, is continuing his "bachelor" life on the farm at Cowansville, Que., where he is running a large dairy. We are somewhat sorry to hear that "Rex" has the

Western fever, as Quebec can ill afford to lose such farmers as he.

M. Crossfield, of Class '11, visited the College during the recent meeting of the Pomological Society. At this meeting he showed some fine fruit, grown on his farm at Abbotsford. Crossfield went to Georgia for his health last fall, spending about two months in the south. We have it on good authority that, although Maurice drives a stylish horse, there is not much prospect of his marriage as yet.

Grover Lasell, of Class '11, is another of the Macdonald men who has gone west to seek his fortune. We hear that he is running a large and prosperous farm and wish him every success in his undertakings.

J. S. Cushing, of Class '12, visited the College during the fall term. He reports everything favorable in regard to his poultry farm at St. Laurent. We are sure that with his natural industry and the knowledge gained during two years' stay at Macdonald, Cushing will be most successful.

HOUSEHOLD SCIENCE.

Miss Winifred Weir, Science '10, is studying at the Montreal Art Association.

Miss Katherine Bovyer, now Mrs. Walter Jones, graduate of Macdonald '08, is living in Washington, D. C., where her husband, who is also an old Macdonald Student, holds a position in the Department of Agriculture.

Miss Ethel Dickinson, Science '09, was recently married to Mr. E. Edwards of Ottawa.

Miss Helena Clare, '08, is at home this year at Petit Brule.

Miss Lena Alguire, Science '11, has gone to Ottawa to spend the winter.

The engagement of Miss Marion Webster, Science '09, to Dr. W. McCracken, graduate of McGill University, is announced.

The many friends of Miss Patience Scott will be pleased to hear she is recovering from her recent illness.

Miss Alice Armitage, Science '09, is training to become a nurse in the Montreal General Hospital.

Miss Ethel Pipes, Science '11, sends the following greeting:—"I certainly wish the college all success and prosperity and heartily congratulate it on the splendid showing the students of Agriculture made at the International Live Stock contest at Chicago."

Miss Mary Innes, of Coldbrook, N. S., graduate of '10, has accepted a position in a business office.

Miss Isabel Ewing, Science '11, writes as follows:—

"I lang hae thocht my youthfu' freends
A something tae hae sent ye
If it may serve nae ither end
Than just a kind memento."

"Since graduating in June last, my thoughts often revert to the good times I had at dear old Macdonald and to the true friendships made while there. It is only after you leave your Alma Mater that you realize the value of the knowledge acquired during your course, whether it be one or two years, and which will be even better understood and valued in after life. I need say no more than to wish you all good health, that you may be able to study hard, and to carefully learn the practical work in all the different departments."

Miss Ola Hurdman, Science '11, is assisting in the Domestic Science Department of the Kent School, Ottawa.

Miss Hope Smith, Science '09, of Chateauguay, recently married Mr. MacDiarmid of Montreal.

A MACDONALD COLLEGE GRADUATE IN SOUTH AFRICA.

Extracts from letter of Miss Jeanette Van Duyn, Pretoria, on Household Science, in Union of South Africa.

Now, with regard to my own doings, I have so much to tell you that I really don't know where to begin. However, I shall give you a brief description of all that has transpired since my return. When I arrived at Cape Town it was pleasant to see a few friends waiting on the wharf to welcome me back. I was very happy indeed to catch the first glimpse of dear old South Africa again, and when once I put my feet on my native land, the very air seemed to inspire me with new vigour

and energy. And really, it may seem egotistical, but surely not a finer climate can be found anywhere in the world, and I appreciate it more and more every day.

Arrived at Cape Town, my friends were very anxious that I should stay over a few days, but Lady van Boescholer (our Mayoress) had arranged a big ball for me the day after my arrival in Pretoria, and so I could not acquiesce to their request. Almost everybody in Pretoria was there that night—also their Excellencies, the Governor and Viscountess Gladstone.

Well, I am sure you will be glad to know that my first public lecture was a very great success. There was a big Dry Land Farming Congress held in Pretoria by the Agricultural Department, which was attended by farmers and Government officials from all over South Africa, even Central and Portuguese East Africa. The Mayor and Lady van Boescholer arranged to entertain these visitors and gave a big reception in the Town Hall. So they invited me to give a talk on my experiences in Canada and my studies there. The Hall was beautifully decorated with palms and flowers; there was a military band in attendance, and altogether it formed a very gay scene. Almost all the Cabinet Ministers were there, and practically the whole of Pretoria turned up that night. Never have I seen the Hall so crammed full of people. When I saw the crowd my heart went down to zero, and you can imagine I had sleepless nights for fear it might be a failure. But you cannot imagine the reception I got, and with what enthusiasm almost every sentence was received. I spoke as I had never spoken before. You could hear a pin drop, and the sympathy of the audience was quite an inspiration. I also gave some lantern views of Canadian farm scenes and girls

at work in Household Science classrooms, which were very greatly appreciated. All the Ministers came up and congratulated me, and even those who were against my going to Canada, came and told me how pleased they were at my success. All round I was simply showered with congratulations, and I am getting invitations from everywhere wishing me to come and speak.

We also had a Household Science Congress, in conjunction with the Dry-Farming Congress. Mind you, when I arrived here I had to work up the whole thing. It was really a very great success. Some excellent papers were read and addresses delivered, and the keen enthusiasm which the women displayed in it was most encouraging. Really, it is perfectly splendid the support I get from all the women; and we certainly took the right step in making it a fashionable affair.

I don't think I told you that on arriving here I found that the Union Government did not support the scheme of the Transvaal Government, namely, to start a Household Science College. So Lady van Boescholer and other prominent ladies started a million shilling fund. The subscriptions, however, were coming in only very slowly, and it could hardly have been expected for people to support or sympathise with a movement about which they knew practically nothing. The Household Science Committee were getting quite discouraged and just depended on me to come and push the movement forward. I am glad to say that since my lecture they have received several substantial amounts and we can get almost anything from the Government we ask now; while the College is, I think, an assured thing now and only has to be passed by Parliament next January.

TEACHERS.

Miss M. Boa is teaching in Fairmount School, Montreal.

Miss Lina Robinson, Class '10, is teaching at Frontier, Que.

Miss E. Gorham, Elementary Class '11, is teaching at Valcartier. Her address is Valcartier Station.

Miss Jean Hamilton, Class '11, is Principal of Athelstan Model School.

Miss Marjorie Thompson is teaching at Hemmingford, Que.

Miss Lea Tanner, Class '10, is instructor in French at Stanstead.

Miss Elsie MacFarlane is residing at her home, Huntingdon, Que.

Miss Isabel Pyke, Class '11, is teaching in the Mount Royal School.

Miss Muriel Goff is teaching at Leeds Village.

Miss Harriet Moss, who left College before Christmas, owing to ill health, expects to return to Macdonald to resume her studies in the month of March.

Miss Marion Bacheller is teaching in Bedford, Que.

Miss Elsie Elliot is teaching at St. Lambert.

The following Alumnae visited the College recently:—H. Jones, M. Allan, R. Vipond, J. Caldwell, M. Farnsworth, M. Doak, D. Petts, F. Bampton, B. MacClarty, K. Wilkinson and F. Petts.

Miss Ruby Blois, Class '09, is teaching in the Earl Grey School, Montreal.

Miss E. Bothwell, Elem. '10, is teaching at St. Francis College, Richmond.

Miss Jessie Grant is in charge of the Model Grades at Sutton Academy.

Miss Alberta Elliot, Class '08, is teaching at Nicolet Falls.

William Lunn School is favored by having Miss H. Tucker as one of its teachers.

Miss M. Bothwell, of Class '11, is teaching at Knowlton Academy.

Miss Edith Moore, Model Class '08, is on the teaching staff of the Fairmount School.

Miss Dorothy Allan is teaching near her home, Ste. Agathe des Monts.

East Angus has a Macdonald graduate for a teacher in the person of Miss Ada Evans, Class '08.

Miss M. Pollock is teaching at Cote des Neiges, near Montreal.

Miss E. Collins, Class '10, has a position on the teaching staff of the Alexandra School, Montreal.



LEAP YEAR.

'Tis leap year, girls, and don't forget
 The privilege of the suffragette.
 With bashful, hesitating beaux,
 Pluck up your courage and propose.
 Untie old Precedent's red tape
 And let no guilty man escape.
 She who hesitates is lost;
 So land your man at any cost.
 If you have youth as well as beauty,
 The leap year cry is "Do your duty."
 "Say, Horace, dear, will you be mine?
 Of all mankind for you I pine."
 If he a happy year should wish you,
 And slyly try to dodge the issue,
 Just get a grip upon his coat
 And put the question to a vote.
 If he votes "No," and you vote "Yes,"
 Throw out no signal of distress.
 "Hip, hip, hurrah; it is a tie—
 Blest be the tie that binds." you cry.

James McCarthy, in N.Y. Herald.

* * *

K——dy—"I see that you girls are
 still like the ancient Venus."

Diningroom Belle (coily, thinking
 she has made a hit)—"Thank you—but
 how do you mean?"

K——dy—"I only meant that in
 the manner of fashions you are still con-
 tent with the judgment of Paris."

Bill—"What is the most nervous
 thing in the world next to a girl?"

M——ty—"Me—next to a girl."

* * *

A problem for teachers to solve in
 Nature Study :

"Why is it that night falls without
 breaking, whereas day breaks without
 falling?"

* * *

Mr. Ham——d—"We can get formic
 acid through the distillation of ants."

W——gate—"How would mothers-
 in-law do?"

* * *

Soph.—"I saw a girl this summer who
 was so cross-eyed that when she cried
 the tears ran down her back."

Junior Science (wishing to appear
 wise)—"Why, she must have had Bac-
 teria."

* * *

Bill—"What is a Knight of the Bath,
 Oughty?"

Oughty—"Oh, Saturday, I guess, if
 I'm going fussing."

* * *

Science—"If a girl kissed you what
 would you do?"

Freshman—"Guess I'd kiss her
 back."

Science—"Why not kiss her face?"

Flame—"I think these flowers are perfectly lovely. Look, there is still a little dew on them, isn't there?"

Fusser (who has just received a hurry-up note from Mr. Ward)—"Yes. I always get things charged up, but I'll pay for them before the 15th of next month."

* * *

Campbell—"What time does the game start? 2.45 isn't it?"

King—"No, it starts at a quarter to three, I saw the notice."

Dr. H—rr——n—"The unit of microscopical measurement is called a micron. Can anyone tell me what the plural would be?"

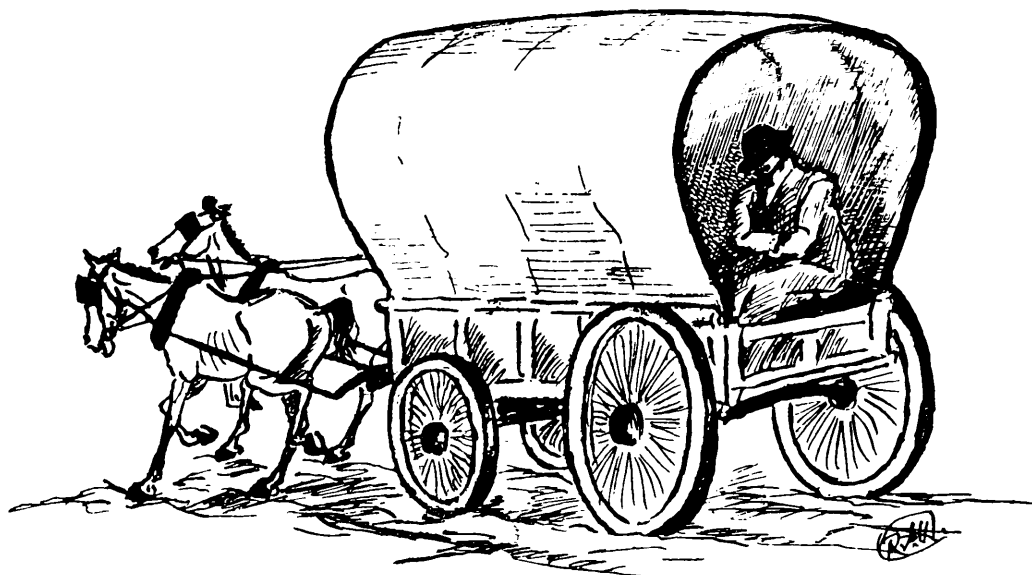
B——ker (in interrogative whisper)—"Micrometer?"

* * *

She (indignantly)—"What do you mean by kissing me?"

He (nervously)—"Er—nothing."

She—"Then don't you do it again, I don't want any man kissing me unless he means business."



C——an leaving the College for G. T. R. on Sunday morning, December 31st, 1911, bound for Ottawa.

Doc. (in murmured protest to F——d, who was trying to steer him across Hyde Park, Chicago)—"Whash you takin' me up shtairs for, Bill? I don't want to go to bed! Hic!"

* * *

Text suitable for a sermon on the weather: "Many are cold but few are frozen."

* * *

Visitor—"Who is that man with red hair sitting at the next table?"

Miss S——tt (indignantly)—"His hair isn't red! It's a rich auburn tinged with terra cotta."

Miss Mac———"I hear the faculty are very proud of your work."

B——ly—"Yes, they have encored my first year."

* * *

Heard in the assembly. Preacher—"The hairs of your head are numbered."

D—ck—"Say, George, your early numbers must have been out for a long time."

* * *

1st Soph. (discussing girls in general)—"What does the average sensible girl do if a chap tries to kiss her?"

2nd Soph.—"Why she is up in arms in a moment, bless her."

Mrs. Mul——(soliloquising)—
 Gin a body meet a body
 With her hair awry;
 Has a body by a body
 Been kissed on the sly ?

* * *

Miss B.—“ Do you go to church, Mr. DuPorte ? ”

D.—“ O yes. I always go to worship in spirit, but usually I leave my body in bed.”

Westgate—“ Did you hear me sing Grace, Miss Scott ? ”

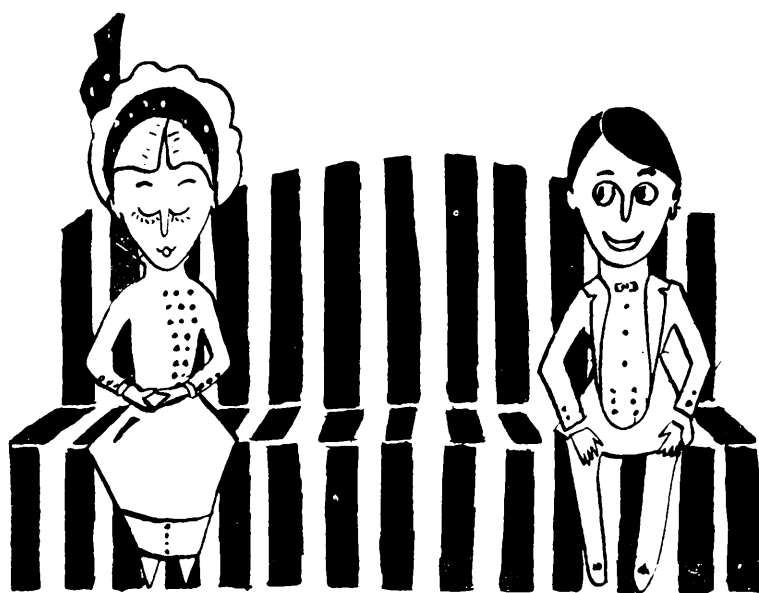
Miss Scott—“ Yes, quite distinctly.”

Huestis—“ 'Tis discord that loudly proclaims itself.”

* * *

Scotty—“ This steak is as tough as a piece of shoe leather and the knife is about as sharp as an axe.”

McClintock—“ Then you may use the steak to strop the knife on ! ”



A legacy was left to Lucy Wegg,
 Who was a spinster, prim as she could be;
 She told her caller she'd been left a leg—
 Then blushing changed it to a limb—acy.

A Siamese paper is responsible for the following :—

“ The news of English we tell the latest. Writ in perfectly style and most earliest. Do a murder git commit, we hear of and tell it. Do a mighty chief die, we publish it, and in borders of somber. Staff has each one been colleged, and write like the Kipling and the Dickens. We circle every town and extortionate not for advertisements. Buy it. Buy it. Tell each of you its greatness for good. Ready on Friday, Number first.”

Prof. L——ad—“ In the examination you will be held responsible for the following families : Cruciferae, Leguminosae, and the Rosaceae.”

M——ty—“ Oh sir, we have been taking up the Rosaceae with Mr. Swaine.”

* * *

Teacher in day school—“ Can any one of you children tell me the names of the three biggest diamonds in the world ? ”

Eric (with recollections of Xmas parties)—“ Ace, King, Queen ! ”

Definitions :

A mutt—A chap who takes a girl out in a canoe and hugs the shore.

A teacher—One endowed with the infinite capacity for giving pain.

Spare bedroom—The dumping ground for all the wedding presents you don't like.

A man's hat—Darkness that may be felt.

Facts—Stubborn things.

Company—Two, except when they are married.

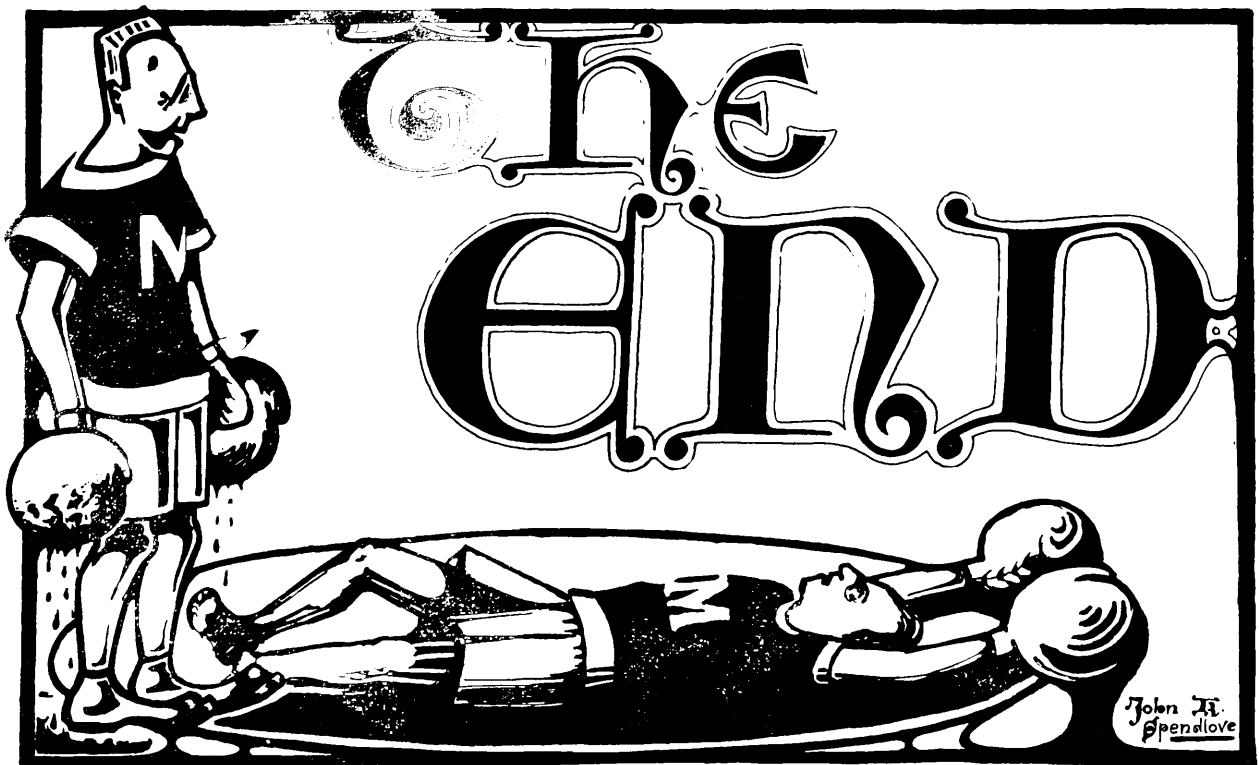
Absence—Something that makes the heart grow fonder (of somebody else).

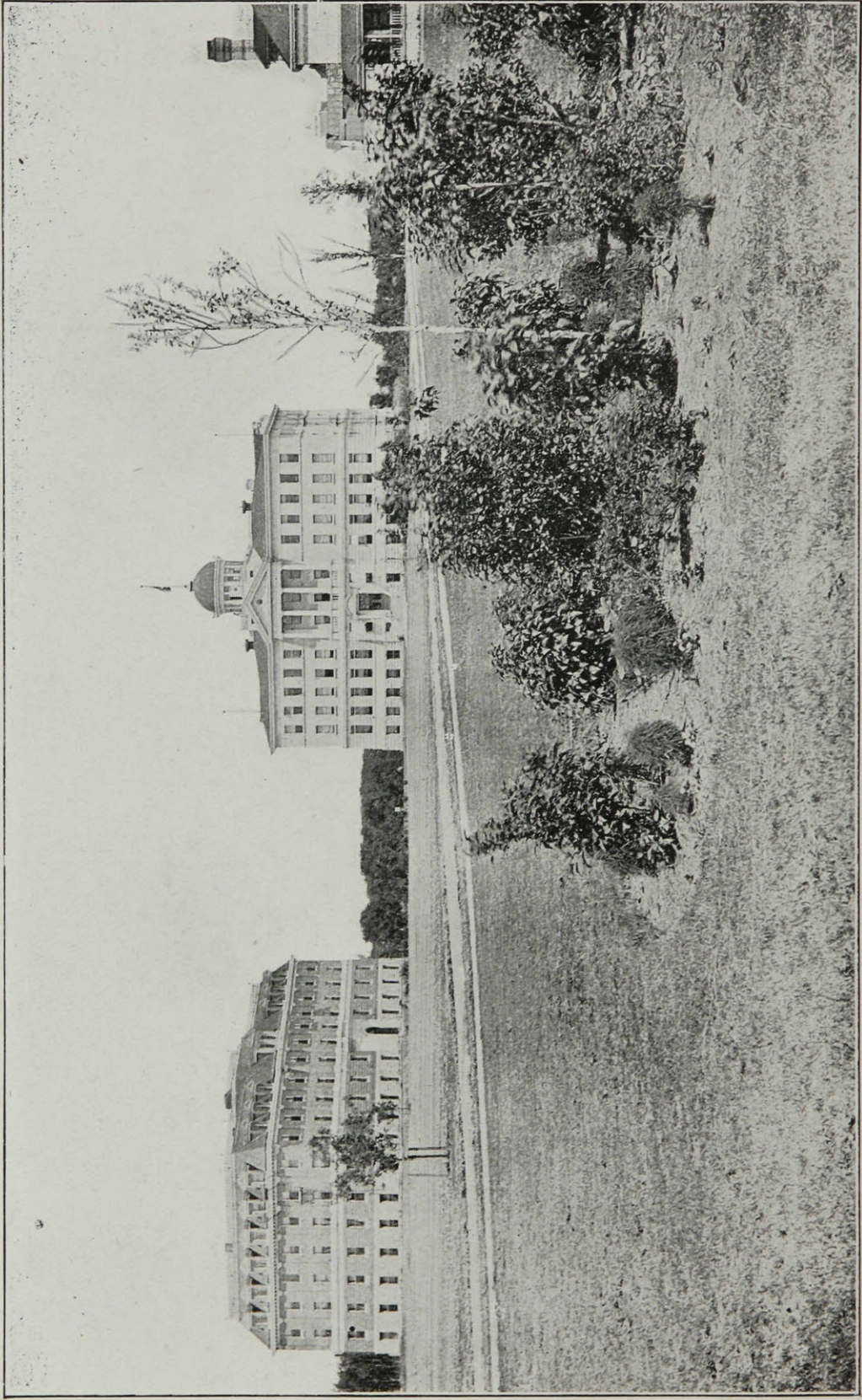
Women—(See facts).

THE MICROBE'S SERENADE.

A lovelorn microbe met by chance
At a swagger bacterioid dance
A proud bacillian belle, and she
Was first of the animalculae.
Of organism saccharine,
She was the protoplasmic queen.
The microscopical pride and pet

Of the biological smartest set,
And so this infinitesimal swain
Evolved a pleasing love refrain :—
“ O lovely metamorphic germ,
What futile scientific term
Can well describe your many charms ?
Come to these embryonic arms
Then hie away to my cellular home,
And be my little diatom ! ”
His epithelium burned with love,
He swore by molecules above
She'd be his own gregarious mate,
Or else he would disintegrate.
This amorous mite of a parasite
Pursued the germ both day and night,
And neath her window often played
This Darwin-Huxley serenade—
He'd warble to her every day
This rhizopodical roundelay :—
“ O most primordial type of spore,
I ne'er met your like before.
And though a microbe has no heart,
From you, sweet germ, I'll never part ;
We'll sit beneath some fungus growth
Till dissolution claims us both ! ”





MANITOBA AGRICULTURAL COLLEGE—ADMINISTRATION BUILDING AND MEN'S RESIDENCE.